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EDUCATION of Deaf and Hard of Hearing Students in Alberta:

1989-1990

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STUDY OF THE EDUCATION OF DEAF AND HARD OF HEARING STUDENTS IN ALBERTA: 1989-1990

Section I. Introduction and Highlights

This report summarizes and discusses information about students with impaired hearing in Alberta during the 1989-1990 school year. It was gathered by a series of province-wide surveys of school administrators, teachers, and parents, providing a nearly complete account of the number and location of students with impaired hearing and a broad sampling of their characteristics and of the schools in which they are taught.

The methodological details will be found at the end of the report in Section VII. Readers who are sophisticated about disability surveys may wish to read that portion first. In particular, the meanings of terms like 'hearing impaired' and 'school' have definitions critical to the interpretation of the results. However, the order of presentation of the findings has been determined by the likely interests of the readers.

The report begins with an introduction and describes the highlights of the study. Section II describes the characteristics of Alberta's students who are deaf and hard of hearing. It includes the locations and number of students , describes them, and presents data about their school progress. Section III contains information about the settings in which they are educated, the resources available for their instruction and care, and other details bearing on their instruction. Sections IV and V describe administrators and teachers and summarize their attitudes and opinions about the education of students with impaired hearing. Section VI provides data about the students' families and home environments.

Numbering of Tables and Figures. Text tables summarize information, while detailed data appears in the appendix. Text tables and figures are numbered consecutively with arabic numerals; e.g., Table 1, Figure 1. Appendix tables have the letter A prefixed, thus: Table A.1 is the first table in the Appendix.

Highlights

Replies to survey forms inquiring about students with impaired hearing were received from 1,694 (89.3 percent) of Alberta's 1,897 schools. The returns represent 94.5 percent of the province's elementary and secondary students.

The total number of students with impaired hearing amounted to 1,413, which is a rate of 3.0 per 1,000 Alberta students. Of the 1,694 responding schools, a little over one third have one or more hearing impaired students enrolled. For schools that do have one or more students with impaired hearing, the average number of such students is about 3 per school, extending over all grade levels.

The distribution of students with impaired hearing varies by geography and chronology. Educational Zones 3 (Edmonton South) and 5 (Calgary) have *proportionally* more students than the remaining four zones. More students with impaired hearing were born in 1975, 1979, and 1980 (calculated as a percent of live births in each year). The coincidence of upsurges in the incidences of rubella with these increases in proportions of students with impaired hearing was noted.

Most students with impaired hearing attend classes with no other student similarly impaired and with only a few similarly impaired students in their entire schools. Over two thirds of teachers have only one student with impaired hearing, and only 12 percent of Alberta's teachers have three or more students with impaired hearing in their classes. Teacher information was available on 878 students. Teachers rated half (50.1 percent) as being mildly or moderately hearing impaired and a little over one-third (37.1 percent) as being severely or profoundly hearing impaired. Estimates were missing for 12.9 percent.

Nearly 10 of every 11 students with impaired hearing acquired that impairment before three years of age and, in current terminology, have *prelingually* impaired hearing. The majority of those students use hearing aids; more than half began to use hearing aids before six years of age, and over a third began using hearing aids before three years of age. The majority wear their hearing aids most of the time.

Almost one in seven of the students with impaired hearing also has impaired vision. About one in nine has a disability in addition to impaired hearing and vision. 11.4 had other physical disabilities, and 12.8 percent had behavior or emotional problems requiring professional assistance. Almost one of five (19.4 percent) students were seen as learning disabled, and 9.1 percent as having a mental handicap. A small portion (4.8 percent) were listed as gifted or having a special talent. The parents generally agreed with their children's teachers with respect to the presence of additional disabling conditions.

Almost four out of 10 parents did not know why their children had impaired hearing. Of those who did, heredity was given most frequently as the cause, followed by infection then other factors. Otitis media, which is also an infection, was specifically mentioned by almost one out of 12 parents who indicated a cause for their children's impaired hearing.

Teachers rated over 40 percent of students with impaired hearing below average for their grade on Reading and Writing. About 3 out of 10 students were rated below grade level on Social Studies and Science. On Daily Living/Social Skills and Mathematics, about 27 percent of the students with impaired hearing were below grade level. The students received best

ratings from their teachers on Physical Education and Vocational Preparation. Parents' ratings tended to concur with respect to the ranking of subjects according to students' achievements, but they differed with respect to degree of achievement. Degree of impaired hearing was related to academic achievement, though somewhat irregularly at the more severe end of the scale of impairment.

The methods of communication teachers use vary with the students' degree of impaired hearing; teachers are more likely to use simultaneous speech and sign language with students who have *much trouble* and are *deaf* than with those whose hearing is *good* or who have *some trouble* hearing. At home, the majority of students with impaired hearing are judged by their parents to hearing well enough to use speech as the principal means of receptive communication.

Most students with impaired hearing use speech at least some of the time, both in school and at home. They can expect that they will be spoken to sometimes, if not frequently, in school and at home. Other forms of communication—signing, writing, fingerspelling, gesturing—occur less frequently than speech, though their frequency varies with the severity of the students' hearing losses.

School administrators were asked about the availability of hearing and vision assessment services. Of those responding, 29.2 did not have audiological testing available. More schools had hearing and vision screening programs, but a large number did not. In programs that had at least one self-contained class for the hearing impaired almost all had such services available.

Teachers of students with impaired hearing tend to be well educated and have substantial teaching experience. With respect to special preparation to teach students with impaired hearing only 24.8 said they had received training. The teachers in self contained programs accounted for 46 of the 125 teachers having special training.

Parents indicated relatively few assistive devices in their homes, the two most commonly used were television-caption decoders and FM systems. Parents most often worried about obtaining proper diagnosis and treatment of their children's hearing problems and the lack of availability of recreational programs. They also were concerned about their children's vision.

Teachers, administrators and parents offered comments. Satisfaction with programs and services was most marked when required services were available. Most often mentioned was a lack of speech therapy services.

The report offers information but also raises some questions that need to be addressed in planning and for future studies. It points out that there are fluctuations in both numbers of students who will be requiring services in any given year and the the fact that prevalence rates differ in each region. Overall the rate of 3.0 percent per thousand is lower than expected. Some reasons for this may be the under-reporting of cases of middle ear infection (otitis media) which is very common in the province, lack of information from some native schools and underrepresentation of students with additional handicapping conditions. It might be that should there be more screening programs in place additional numbers of students might be identified at an early age when intervention is so critical.

Few administrators and teachers had special training in the area of hearing impairment which may relate to the data showing that most teachers and administrators are exposed to a small number of hearing impaired students. This area should be addressed as mainstreaming of students increases.

Section II. Characteristics of Alberta Students who are Deaf and Hard of Hearing

This chapter describes the principal characteristics of the 1,413 students with impaired hearing. Because of the different sources of information from which data on a particular point have been drawn, the numbers of students represented will change from time to time. The reader should be alert to the totals shown at the head of each tabular presentation: 1,413 represents data on the entire take; 887 indicates the data are from the teacher questionnaires; 502 is the total number of parent reports. Other totals are derived from combinations of data from more than one source. In addition to the totals for each table and graph, the sources of the data are also shown at the foot of the table when they are not otherwise apparent. For further discussion of sample sizes, see Section VII, Methodology.

The decision with respect to how confidently one can generalize from the smaller samples to the province's total student population is left to the reader. This problem is addressed at length in the Methodology chapter.

Number and Rate of Students with Impaired Hearing

Among students in Alberta's 1,897 schools, those with impaired hearing constitute a very small proportion. The 1,694 schools that responded to the survey enrolled a total of 467,898 students of whom 1,413 had impaired hearing (see Table 1)—a rate of 3.0 students with impaired hearing per 1,000 Alberta students.

That rate assumes that the distribution of students with impaired hearing is the same in schools that did and those that did not respond to the survey. If the 203 nonresponding schools have students with impaired hearing at the same rate as those that did report, then the proportion of hearing impairment among Alberta students is unaffected. However, if the nonresponding schools had no students with impaired hearing, then the rate for provincial students would drop to 2.9 per 1,000. Similarly, if they had proportionally fewer students than the responding schools, the rate would be commensurately lower. Another possibility is that nonresponding schools had a higher rate of hearing impairment among their students, a possibility that seems unlikely. If it were true, the rate would have to be adjusted upward by some amount proportionate to the higher rate.

In what follows, the bases for calculating rates are the enrollments in the reporting schools. Whether this leads to under or overestimation must be left to readers to decide. (For a further discussion of this point, see Section VII. Methodology.)

Table 1

Number of Schools, Their Enrollments, and Number of Students with Impaired Hearing and Rate per 1,000: Alberta, 1989

Schools	Number	A. Enrollment of All Students	B. Enrollment of Hearing Impaired Students	(B/A)X 1,000
All	1,897	495,074	—	—
Responding	1,694	467,898	1,413	3.0
Not Responding	203	27,176	—	—

Age and Gender

Proportionally more males than females are among Alberta's students with impaired hearing. Of the 502 students reported by parents, 212 were female and 290 male, a ratio of 137 males to 100 females. This male preponderance is regularly found among random samples of deaf children. The recent Health and Activity Limitation Survey (HALS) conducted by Statistics Canada estimated a ratio of 125 males to 100 females for hearing impaired persons under 15 years of age (Schein, 1991). Among U.S. schoolchildren with impaired hearing, the Annual Survey of Hearing Impaired Children and Youth reports a male: female ratio of 117 males to 100 females (Reis, 1986, p.27).

The age distribution (see Table 2) reveals some remarkable year-to-year fluctuations. The relatively low numbers of students at the extremes probably reflect enrollment policies and related conditions, rather than the prevalences of hearing impaired persons of those ages in the population. Relatively low numbers for the birth years after 1985, for example, are likely due either to parents not enrolling very young children in early education classes (ECS programs), the absence of such programs near their homes, the inability of the ECS to accommodate the children, or a combination of these factors. For birth years 1969 through 1972, the numbers are likely reduced by those who have graduated or left school, having reached an age beyond the compulsory schooling requirement.

Table 2

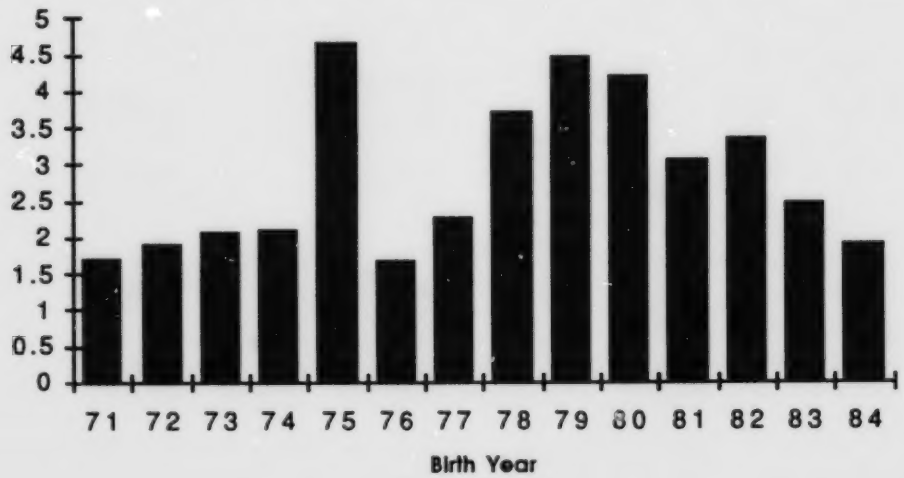
Distribution of Students with Impaired Hearing, by Birth Year: Alberta, 1990

Birth Year	Number	Birth Year	Number
1969-1987	887	1978	75
1969	3	1979	81
1970	15	1980	89
1971	30	1981	61
1972	31	1982	72
1973	41	1983	63
1974	46	1984	40
1975	84	1985	33
1976	42	1986	21
1977	48	1987	12

Figure 1 graphs the ratios of students with impaired hearing to total births in the students' birth years. A peak occurs in 1975, and a marked 'hump' spans the six years from 1978 to 1982. Reference to the Alberta Public Health Department's account of cases of rubella (see Appendix Table A.4) shows that 1975 had an exceptionally high number of cases (4,683) compared to the adjacent years (1,001 in 1974, and 714, in 1976). Another 'rubella bulge' occurred in 1979, with 3,042 cases, and 1983, with 3,726 cases. Since maternal rubella occurring in the first trimester of pregnancy is associated with birth defects, such as impaired hearing, some of the excess enrollments may be accounted for by those epidemics. Among others reasons that must be considered are in- and out-migration patterns.

Figure 1

Students with Impaired Hearing as a Rate per 1,000 Live Births in Their Birth Years



Residence

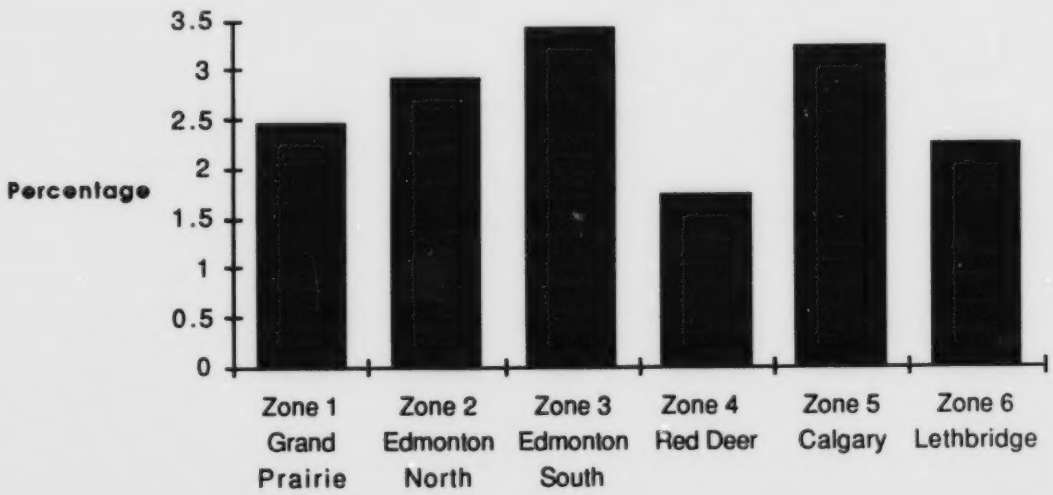
The majority of the 502 students reported upon by parents (466 or 92.8 percent) lived at home with their parents or guardian and a small number (12 or 2.4 percent) did not. (Note that this calculation is based on replies from 502 parents, and not from all identified students with impaired hearing). Given the chronological ages of the students and the fact that a larger portion of the 466 than of the total of 1,413 students attend the Alberta School for the Deaf, this finding affirms expectations that most students with impaired hearing are residing at home.

Geographical Distribution

For purposes of educational administration, Alberta Education divides the province into six zones. Figure 2 displays the distribution of the 593 schools enrolling students with impaired hearing over the six zones. They are unevenly distributed, with larger concentrations in Zones 3 (Edmonton South) and 5 (Calgary). More than half of the schools (60 percent) are in the latter two zones. The remaining 40 percent of schools with hearing impaired students are fairly evenly distributed among the other four zones.

Figure 2

Percent Distribution of Students with Impaired Hearing by School Zones; Alberta, 1989.



Since schools vary in the sizes of their enrollments, it is also necessary to look at the distribution of students within the zones (see Table 3). Zones 3 and 5 still have the largest *proportion* of students with impaired hearing as well as numbers—3.4 and 3.2 per 1,000, respectively. However, Zone 4, has a far lesser proportion of students with impaired hearing (1.7 per 1,000) than any of the other zones, with Zones 1, 2 and 6 having somewhat similar rates: 2.5, 2.9, and 2.3 per 1,000, respectively. This distribution lend support to the contention that parents move to areas in which services are apt to be more prominent for students with disabilities, although it is also possible that the rates reflect additional factors, such as differential incidences of hearing impairment in the various zones.

Irrespective of the reasons for the discrepancies in rates, the results emphasize the necessity for planners and administrators to have specific information about numbers of students with impaired hearing in specific locales. Borrowing rates from other provinces to project provincial enrollments or even using province-wide rates to predict local numbers will often result in fallacious conclusions. Applying the rate for Edmonton South, for example, to Red Deer would result in overestimating its enrollment by twice the size that it actually is—3.4 vs. 1.7. While not as large—and potentially costly—other discrepancies between the province's general rate and a zone's actual rate support this caution in using rates derived from one area and applying them to a different area.

Table 3

Distribution of Students with Impaired Hearing, by School Zones: Alberta, 1990

Zone	All Schools in Zone	Number of Schools with Hearing Impaired Students	All Students Enrolled	Hearing Impaired Students	Rate/ 1,000
All	1,694	591	467,898	1,413	3.0
1	149	43	29,817	73	2.5
2	122	43	31,884	93	2.9
3	537	201	173,377	591	3.4
4	204	43	38,551	67	1.7
5	454	206	149,620	483	3.2
6	232	55	44,649	106	2.3

Hearing Ability

Degree of Impairment. Of 878 students for whom information on hearing ability was available, teachers rated half (50.1 percent) as being mildly or moderately impaired and a little over one third (37.1 percent) as being severely or profoundly impaired. Estimates were missing for 12.9 percent. This information is summarized in Table 4.

Appendix Table A.1 indicates the degree of loss, by year, by sex for the 742 students for whom this information was available.

Table 4

Teachers' Report of Student's Current Best Hearing With Amplification

Student's Best Hearing With Amplification		Number	Percent
All Students		878	100.0
	Hearing is Good	123	14.0
	Some Trouble	317	36.1
	Much Trouble	163	18.6
	Child is Deaf	162	18.5
No Response		113	12.9

Parental judgments of student's hearing ability generally agreed with those of the teachers, though parents tended to rate a somewhat higher proportion as mildly and moderately impaired (60.7 vs. 50.1 percent) than did the teachers and slightly less as being severely to profoundly impaired (35.6 vs. 37.1 pecent. See Table 5). Some of the difference in the proportion in each of the four categories may be due to the parents having a higher response rate than teachers: 96.4 to 87.1 percent.

Table 5

Parents' Report of Students' Current Best Hearing With Amplification

Student's Best Hearing With Amplification	Number	Percent
All reporting	502	100.0
Hearing is Good	112	22.3
Some Trouble	193	38.4
Much Trouble	80	15.9
Child is Deaf	99	19.7
No Response	18	3.6

Age at Onset. With respect to the age at onset of their impaired hearing, 502 students' parents advised that 64.5 percent were impaired from birth, 21.5 percent after birth but before 3.5 years of age, 9.0 percent between 3.5 and 6 years of age, and 2.8 percent after 6 years of age. In only 2.2 percent of the cases was this information not reported (see Table 6). Thus, most of the students with impaired hearing have had that problem since early childhood; i.e., before they were 3.5 years of age. Since the growth of both speech and language are most rapid in that period, impairments of hearing occurring then are more apt to impact negatively upon a child's speech and language development than a loss of similar severity that occurs later.

Table 6

Parents' Report of Ages at Onset of Students' Hearing Impairments

Onset of Hearing Impairment	Number	Percent
All reporting	502	100.0
Birth	324	64.5
Before 3.5 years	108	21.5
3.5 to 6 years	45	9.0
Over 6 years	14	2.8
No Response	11	2.2

Age at Onset by Degree and Birth Year. Table A.2 shows the numbers of students with impaired hearing by degree of impairment, age at onset, and year of birth. The year in which the largest number of *deaf* students were born was 1975, which coincides with the rubella epidemic in that year. The second largest number of *deaf* students were born in 1978. The years 1979, 1983 and 1984 produced the largest numbers of students with *much trouble* hearing. For

those with *some trouble* hearing, 1982 had the largest number, followed closely by 1979 and 1980 in terms of numbers giving those birth years. 1979 and 1980 were the years having the largest number of students with *good* hearing. The data in Table A.2 also reveal that age at onset and degree of impairment are related, with more of those rated *deaf* and *much trouble* being born hearing impaired than those rated *good* and *some trouble* hearing.

Hearing Aids

Most students with impaired hearing have hearing aids. Teachers report over half of the students (61 percent) wore aids in the classrooms; 28.1 percent did not, and 10.8 percent were missing this information (Table 7).

Table 7

Teachers' Report of Students' Use of Hearing Aid: Alberta 1990.

Student Use of Hearing Aid	Number	Percent
All reporting	878	100.0
Yes	536	61.0
No	247	28.1
No Response	95	10.8

Parents also advised about their children's use of hearing aids (Table 8). A somewhat larger portion of parents (79.3 percent) indicated their children wore hearing aids than did teachers (61.0 percent). In order to determine whether this reflected the possibility that the students in the parent sample were more hearing impaired than in the teacher sample led to a further analysis by degree of hearing loss. The correlation between parent's report of student's use of a hearing aid and estimated degree of impairment was 0.825 (probability less than .001). For teachers, the parallel correlation was 0.660 (probability less than .001). These data support the contention that as hearing impairment increases the likelihood that the student will use a hearing aid increases.

It could also reflect a possibility that some students, especially teenagers, remove their hearing aids after leaving home and before entering school, in order to avoid being stigmatized by their classmates. On the other hand, while differing with respect to magnitude of hearing aid use, the two data sets reach the same general conclusion: the majority of students with impaired hearing do use hearing aids.

Table 8

Parents' Report of Students' Use of Hearing Aid

Student Use of Hearing Aid	Number	Percent
All reporting	502	100.0
Yes	398	79.3
No	100	19.9
No Response	4	0.8

About two thirds (65.8 percent) of students with impaired hearing began using hearing aids before six years of age and less than one in 50 (1.8 percent) began using hearing aids after they were 10 years of age (Table 9) These data conform with those for the age at onset of impaired hearing (videsupra), which indicate that most of these students' hearing was impaired early in their development.

Use of a hearing aid is related to the degree of hearing impairment. The relationship, however, tends to be nonlinear. Three fourths of those rated as having *good* hearing (75.2 percent) use hearing aids, while 6 in 10 of those who have *some trouble* use hearing aids. Of those having *much trouble* hearing, 9 in 10 (90.3 percent) use hearing aids, while only about two out of three (67.4 percent) of those rated *deaf* use hearing aids. Some factor other than degree of impaired hearing probably contributes to the odd distribution of use. That *deaf* persons might eschew use of hearing aids seems reasonable, since those with profound impairments typically receive from the aid little or no assistance in understanding speech. But reasons why those with *some trouble* hearing use aids less often than those with *little trouble* hearing remains obscure. However, it should be reiterated that the majority of students with impaired hearing do use hearing aids, regardless of the degrees of their impairments.

Table 9

Parents' Report of Age at Which Student Began Using Hearing Aid

Age of Beginning Use of Hearing Aid	Number	Percent
All reporting	502	100.0
Before 6 Months	17	3.4
6 Months to 2 Years	170	33.9
3 to 5 Years	143	28.5
6 to 10 Years	54	10.8
After 10 Years	9	1.8
No Response	109	21.7

Having a hearing aid and using one are not necessarily the same thing. Parents believe the majority (59.6 percent) of their hearing impaired children usually use their hearing aids, but 6.8 percent believe they rarely do (Table 10). Whether being in this latter group has any educational importance depends upon the degree and type of the students' hearing impairments and the extent to which they benefit from the use of hearing aids.

Table 10

Parents' Report of Child's Frequency of Use of Hearing Aid

Frequency of Use of Hearing Aid	Number	Percent
All reporting	502	100.0
Rarely	34	6.8
Sometimes	55	11.0
Usually	299	59.6
No Response	114	22.7

Causes of Impaired Hearing.

A substantial portion of the parents (199 or 39.64 percent) did not report a cause of their children's impaired hearing. This sizable 'unknown ' response is commonly found in studies of impaired hearing (MacDougall, 1988; Schein, 1974).

Table 11

Parents' Report of Cause of Their Children's Impaired Hearing

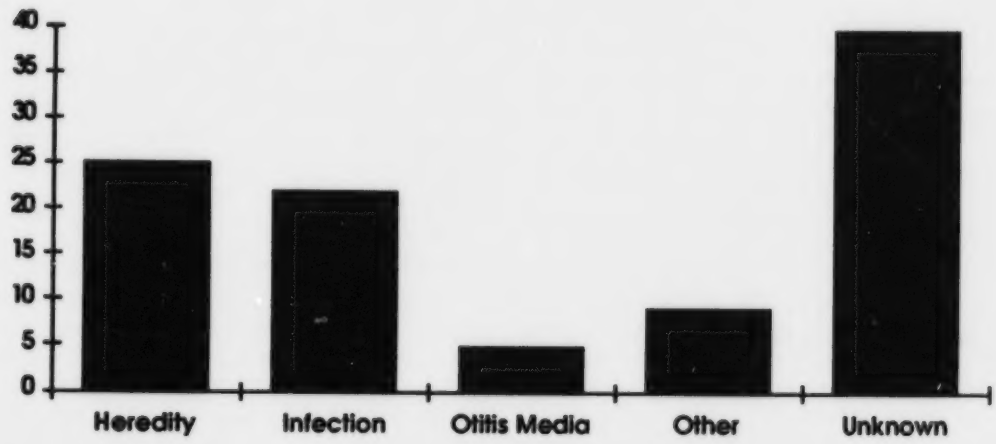
Cause	Number	Percent
All parental reports	502	100.0
Heredity	125	24.9
Infections (including maternal infections)	109	21.8
Otitis media	24	4.8
Other causes	45	9.0
Cause unknown/unstated	199	39.6

Table 11 summarizes the parents' responses to the question about cause of their children's impaired hearing. As illustrated in Figure 3 the most frequent cause cited is heredity (24.9 percent). Some experts regard an estimate of that magnitude as far too low, since

determining hereditary linkage is not only time-consuming but also carries with it a stigma for some parents (McKusick, 1989). The second most frequently reported cause is the group of infectious diseases (21.8 percent), including maternal rubella and meningitis. Other mentions of high fevers and infections fit into the latter category, along with encephalitis, mumps, and other maternal infections. See Table A.3 for further details.

Figure 3

Percentage of Students by Cause of Impairment



The cases parents label 'congenital' probably belong to either hereditary causation or one of the maternal infections, but with only that clue, an assignment to the Other category seems most appropriate. The reported number of cases of otitis media (24) seems very low, in view of the high prevalence of this condition, especially among Native populations. However, while the condition may be as prevalent in Alberta as elsewhere in Canada, the prompt treatment of this condition may allay the loss of hearing that accompanies chronic cases. Also, chronic otitis media usually is associated with hearing impairment of later onset in childhood, rather than at birth.

Familial Hearing Impairments. Supporting the parents' information about heredity as a major cause of impaired hearing among their children were the data about hearing impairments among family members. Table A.5 reveals that 15.2 percent of the students have first-order family members with impaired hearing. In Table A.6 the proportion with relatives who have impaired hearing increases to 33.3 percent. These data make a strong case in support of the hereditary nature of a portion of the hearing impairments among students.

Visual Ability

Contrary to popular myths about strengths in some abilities compensating for disabilities in others, students with impaired hearing are *more* likely to have another disabling condition than children in general (Schein, 1979, 1986). Of considerable educational significance to students whose hearing is impaired is vision. Asked to assess the visual capabilities of their students with impaired hearing, most teachers (85.9 percent) report that their hearing impaired students have no significant visual problems. However, 14.1 percent do believe their hearing impaired students have impaired vision.

Teachers' estimates of students' visual abilities, as shown in Table 12, accord with their overall judgment that most of the students with impaired hearing have little or no visual problem. They rate 57.1 percent as having good vision 7.5 percent as having some trouble seeing, 2.4 percent as having a lot of trouble, and 0.6 percent as blind. No report was obtained for 32.4 percent. The majority of hearing impaired students were reported not to wear glasses (see Tables A.4, and A.5).

Table 12

Teachers' Report of Students' Current Best Vision With Correction

Student's Best Vision With Correction	Number	Percent
All reporting	878	100.0
Vision is Good	501	57.1
Some Trouble	66	7.5
Much Trouble	21	2.4
Child is Blind	5	0.6
No Response	285	32.5

Of the parents reporting, 123 (24.5 percent) said that their child had a visual impairment, (Table A.7) and 111 noted the age at which the visual impairment occurred (Table 13). However, with correction only 8.6 still have a notable loss. Parents' and teachers' assessments of students' vision agreed substantially: the correlation between them was 0.5277 (probability less than .001). This and other correlations between teachers' and parents' reports is discussed under Methodology.

Table 13

Parents' Reports of Ages At Onset of Students' Visual Impairments

Onset of Visual Impairment	Number	Percent
All reporting	502	100.0
Birth	30	6.0
Before 3 years	7	1.4
4 to 5 years	12	2.4
6 to 10 years	41	8.2
Over 10 years	21	4.2
No Response	391	77.9

Teachers also noted that 18.0 percent of the students with impaired hearing wore glasses to correct their vision, while 54.4 percent did not, and no information was given for 27.6 percent (see Table 14).

Table 14

Teachers' Reports of Students Wearing Glasses

Student's Use of Glasses	Number	Percent
All Teachers	878	100.0
Yes	158	18.0
No	478	54.4
No Response	242	27.6

These judgments by the teachers and the parents should not substitute for optometric and ophthalmological examinations. Good vision is important to all people, but it is essential for the education of students who have an absent or impaired auditory sense. While teachers' and parents' assessments of the hearing impaired students' vision are moderately encouraging, they should not be taken to be definitive with respect to how well these students' remaining distance sense functions. Periodic assessments of all students' hearing and vision have considerable value in any educational system.

It should also be pointed out that an estimated 3.0 percent of the students with severe and profound hearing impairments also have much trouble seeing or are blind—placing them in the most educationally severe category of *deaf-blind* students. Since hearing impairment shifts the perceptual roles, making the hearing impaired persons more *visually dependent*, even a minor visual defect must be considered in planning their education and rehabilitation. These data support the call for more attention to the vision of students with impaired hearing.

Other Disabilities

Additional disorders usually occur more frequently within the hearing impaired than the general student population. Teachers recorded the presence or absence of a variety of disabling conditions other than hearing impairment or visual impairment. Other than vision and hearing, teachers regarded 11.4 percent of the students with impaired hearing as having other physical disabilities. Teachers noted that 12.8 percent of the students had behavior or emotional problems requiring professional assistance. Almost one of five (19.4 percent) students were seen as learning disabled, and 9.1 percent as having a mental handicap. A small portion (4.8 percent) were listed as gifted or blessed with a special talent. The parents generally agreed with their children's teachers with respect to the presence of additional disabling conditions. (Tables A.9 and A.10.

School Progress

Both teachers and parents compared the academic achievements of the hearing impaired students to their classmates. Table 15 presents this information from the teachers and Table 16 from the parents. In general, students with impaired hearing fared less well academically than their normally hearing peers, as judged by their teachers and parents.

As a group, teachers did place a few students with impaired hearing in a high academic rank. Daily living and social skills were the areas for which teachers gave the student the highest ratings, and students with impaired hearing were judged to be equal with their normally hearing peers most often in physical education.

Table 15

Teachers' Comparison of Students with Impaired Hearing with Hearing Peers in School Subjects

N = 878

School Subject	Above Grade Level Percent	At Grade Level Percent	Below Grade Level Percent	Don't Know/ No Response Percent
Daily Living / Social skills	4.4	39.7	27.0	28.8
Reading	5.8	18.6	42.5	33.1
Written Expression	4.8	16.5	44.3	34.4
Social Studies	2.5	23.3	31.3	42.8
Mathematics	5.4	27.1	27.8	39.8
Science	2.8	24.3	29.6	43.3
Physical Education	4.2	41.3	17.8	36.7
Vocational Preparation	3.1	22.4	17.8	56.8

Parents were more apt to judge their children to be at or below grade level than above grade level as compared to other children the same age without a hearing impairment as is seen in Table 16. However, they more often than teachers felt their children were above or at grade level as compared to their hearing peers.

Table 16

Parents' Comparison of Grade Level of Student as Compared with Hearing Peers

N = 502

School Subject	Above Percent	Same Percent	Below Percent	No Response Percent
Age-appropriate Living Skills	12.5	49.8	19.1	18.5
Social Behavior (Getting along with others, cooperativeness)	12.5	51.2	19.5	16.7
Language Arts:				
Reading	15.7	28.5	36.5	19.3
Written Expression	12.4	26.3	41.0	20.3
Spelling	15.1	30.5	34.1	20.3
Social Studies	10.6	36.3	27.5	25.7
Mathematics	15.5	35.1	26.9	22.5
Science	8.4	38.0	27.3	26.3
Physical Education	15.1	47.0	15.3	22.5
Vocational Preparation	6.4	28.3	22.1	43.2

Parents' Estimate of Future Achievement. Another measure of the parents' confidence in their children's abilities was their estimate of how far they believed their child would go in school. As seen in Table 17 almost half (48.8 percent) think that their hearing impaired child will enter postsecondary education. Only a small fraction (5.2 percent) do not believe these students will enter high school and only another small portion (6.8 percent) estimate their child will not complete high school. In general, then, the parents appear to have a fairly high opinion of their children's ability to succeed educationally.

Table 17

Parents' Estimates of Children's Ultimate School Attainment

Level Child will Attain	Number of Children	Percentage of Children
Parents Responding	502	100.0
Up to Grade 9	26	5.2
Some High School	34	6.8
Complete High School	125	24.9
Postsecondary	245	48.8
No Response	72	14.3

Teachers' Estimate of Hearing Impaired Students' Achievement. Teachers were also given the opportunity to speculate on the highest educational level the student would achieve. The majority projected that their students would complete high school and, for a significant additional portion, enter postsecondary programs (Table 18). However, a substantial number of students (115 of 549 on whom this estimate was provided) had teachers who predicted that they would do no better than Grade 9.

Table 18

Teachers' Perception of Highest School Level Student Will Achieve: Alberta, 1990.

Level Student Will Achieve	Number of Students	Percentage of Students
Total Students	878	100.0
Up to Grade 9	115	13.1
Some High School	70	8.0
Complete High School	172	19.6
Postsecondary	192	21.9
No Response	329	37.5

Since there might be a correlation between the severity of the hearing loss and the teachers' perceptions, a further analysis was done as seen in Table 19. In general, the better the hearing, the better the academic ratings. Students whose hearing is rated *good* receive better ratings in all subjects. Similarly, those with some trouble do better than the two severer ratings in all instances rated. However, the distinctions between the students labelled *much trouble* and *deaf* blur in some subjects and are reversed in two other instances. Those called *deaf* were equal, or nearly so, in Skills of Daily Living, Science, and Physical Education. They did better than those with *much trouble* in Mathematics, Social Studies, and Vocational Education.

Table 19

Percent of Students with Impaired Hearing Below Average of Peers on Various Academic Subjects, by Degree of Hearing Impairment

		Percent Below Average of Peers			
Subject	Hearing:	Good	Some Trouble	Much Trouble	Deaf
Skills of Daily Living		18.7	32.1	45.9	45.3
Reading		49.5	52.9	68.8	73.9
Writing		53.0	55.9	70.8	76.6
Mathematics		26.7	32.1	54.1	51.1
Social Studies		35.6	39.1	62.3	55.0
Science		6.1	11.8	14.0	13.3
Physical Education		1.7	7.2	7.4	8.1
Vocational Education		18.1	24.8	40.5	35.9

Overall, however, students with impaired hearing tended to do less well than their normally hearing classmates on those subjects that demanded good verbal skills; e.g., reading and writing. A major exception to that generalization is Science, though its greater emphasis on demonstration may assist deaf students to overcome their slower language development. In a nonverbal subject like Physical Education, students with impaired hearing performed as well or better than their normally hearing peers.

Communication

As would be expected, teachers adjust their communication to suit the needs of the students. The primary means of communication with hearing impaired students was speech, with writing as the second preference (Table 20). A graphic comparison of speech, writing and sign language is shown in Figure 5. Those unable to hear and understand speech through the ear alone present the greatest challenge to teachers. Manual communication (signs and fingerspelling) was used frequently with less than one in five students and occasionally with about 1 in 10. Three teachers emphasized that they used American Sign Language, the natural form of sign language as opposed to invented forms (Schein, 1984). Others indicated not only ways in which they communicated but the fact that they had aides who communicated using sign language with the students. Teachers'comments about other types of communication used in the classroom appear in Table A.11.

Table 20

Frequency of Teacher Use of Various Methods of Communication With Hearing Impaired Students

(N = 505)

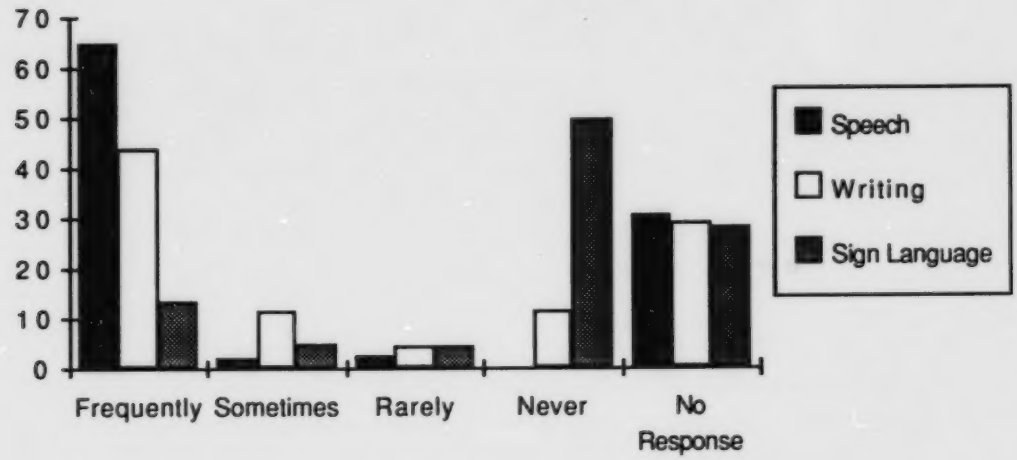
Communication Method	Frequently		Sometimes		Rarely		Never		No Response	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Speech	328	65.0	10	2.0	13	2.6	0	0	154	30.5
Writing	221	43.8	59	11.7	21	4.2	58	11.3	146	28.9
Finger Spelling	32	6.3	31	6.1	15	3.0	282	55.8	145	29.7
Sign Language	67	13.3	24	4.8	21	4.2	250	49.5	143	28.3
Simultaneous Speech and Sign	66	13.1	19	3.8	21	4.2	256	50.7	143	28.3
Other	9	1.8	8	1.6	3	.6	484	95.9	1	.2

The methods of communication teachers use vary with the students degree of impaired hearing. For instance, teachers are more likely to use simultaneous speech and sign language (SimCom) with students who have *much trouble* and are *deaf* than with those whose hearing is *good* or who have *some trouble* hearing. With regard to sign language, teachers use it with deaf students frequently 83.6 percent, sometimes 9.0 percent, rarely 5.2 percent, and never 2.2 percent. By contrast, they use sign with those they rate as having good hearing frequently 17.6

percent, sometimes 23.5 percent, rarely 11.8 percent, and never 47.1 percent. As would be expected, then, the methods of communication depend to some extent upon the students' degrees of impaired hearing.

Figure 5

Comparison Between Types of Communication Used by Teachers



The teacher's report on type and frequency of communication used by students in the classroom is shown in Table A.67. The most frequent communication mode is speech which is used by 60.0 of the students either frequently or sometimes. Only 12.1 percent of the population rarely or never used speech.

At home, the majority of students with impaired hearing are judged by their parents to hear well enough to use speech as the principal means of receptive communication (Table 21). The small differences between mothers' and fathers' communication modes may have some significance in individual cases, though generally the two parents communicate in the same ways with their hearing impaired children. As with the teachers choice of communication modes, parents tend to vary their communication in accordance with the degree to which their children's hearing is impaired.

Table 21

Type and Frequency of Communication by Family Members with Hearing Impaired Student

N = 502

Relation/Type of Communication	Speech		Writing		Finger Spelling		Sign Language		Home Signs		Simultaneous Speech & Sign	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Mother												
Almost Always	366	72.9	35	7.0	43	8.6	119	23.7	31	6.2	113	22.5
Sometimes	41	8.2	103	20.5	83	16.5	72	14.3	61	12.2	55	11.0
Seldom/Never	9	1.8	84	16.7	34	6.8	28	5.6	43	8.6	21	4.2
No Response	86	17.1	208	55.8	342	68.1	283	56.4	367	73.0	313	62.3
Father												
Almost Always	338	67.3	27	5.4	27	5.4	85	16.9	27	5.4	78	15.5
Sometimes	24	4.8	75	14.9	52	10.4	60	12.0	50	10.0	39	7.8
Seldom/Never	52	12.4	128	25.8	84	16.8	78	15.6	61	12.2	75	15.0
No Response	78	15.5	272	54.2	339	67.4	279	55.5	394	72.4	310	61.7
Other												
Almost Always	308	61.4	21	4.2	13	2.6	59	11.8	23	4.6	58	11.6
Sometimes	18	3.6	63	12.5	44	8.8	46	9.2	39	7.8	39	7.8
Seldom/Never	176	35.1	417	83.1	442	88.0	396	72.1	436	86.9	404	80.4
No Response	0		1	.2	3	.6	1	.2	4	.8	1	.2

How the hearing impaired *students* express their thoughts and feelings at home are displayed in Table 22. From the variety of responses to specific communication partners—mother, father, siblings, etc.—the burden appears to rest upon the student with impaired hearing to adjust to those with normal hearing, though their are clear exceptions. For example, while students who have severe (*much trouble)* and profound (*deaf*) impairments make up almost half of the student population, almost two thirds of the students use only speech with their mothers.

Table 22

Type and Frequency of Communication by Hearing Impaired Student With Family Members

N = 502

Student's Communication Methods with Family Members	Speech		Writing		Finger Spelling		Sign Language		Home Signs		Simultaneous Speech & Sign	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Mother												
Almost Always	332	66.1	25	5.0	32	6.4	124	24.7	32	6.4	73	14.5
Sometimes	36	7.2	85	16.9	74	14.7	62	12.4	51	10.2	62	12.4
Seldom/Never	28	5.6	87	17.3	35	7.0	23	4.6	40	8.0	23	4.6
No Response	106	21.1	305	60.8	361	71.9	293	58.4	379	75.5	344	68.6
Father												
Almost Always	304	60.6	24	4.8	21	4.2	101	20.1	26	5.2	54	10.8
Sometimes	28	5.6	77	15.3	57	11.4	55	11.0	46	9.2	47	9.4
Seldom/Never	27	5.4	101	20.1	65	13.0	57	11.4	53	10.6	58	11.6
No Response	101	20.1	300	59.8	359	71.5	289	57.6	377	75.1	343	68.3
Other												
Almost Always	274	54.6	19	3.8	19	3.8	79	15.7	23	4.6	47	9.4
Sometimes	29	5.8	65	12.9	65	12.9	42	8.4	32	6.4	42	8.4
Seldom/Never	199	39.7	417	83.1	417	83.1	380	75.7	444	88.5	411	81.9
No Response	0		1	.2	1	.2	1	.2	3	.6	2	.4

Ninety percent of parents use English when communicating in the home with their hearing impaired children. See Tables A.12. A.13 and A.14 for a listing of the other languages and methods of communication used in the homes of students with impaired hearing.

Extracurricular Activities

Students with impaired hearing do not appear to engage in many extracurricular activities, either at school or in the community according to their parents' reports. Individual and team sports were the activities most commonly engaged in at home and school. See Appendix Table A.15 and A.16 for the parents' reports on details of those activities.

Section III. The School Environment

Data from the survey provides a description of the teaching/learning environment in which students with impaired hearing are educated. The information from the various respondents included both quantitative and qualitative descriptions of classrooms and schools, and of the facilities available in each.

Numbers of Students with Impaired Hearing per School

The majority of Alberta's schools do not have even one student with impaired hearing. Of the 1,694 schools, only 593 (35.0 percent) reported having at least one hearing impaired student. Even if all of the 203 schools that did *not* respond to the survey had one or more students with impaired hearing, the rate of students with hearing impairments per school would still be less than 50 percent (593 + 203/1,897= 42.0 percent).

Table A.17 shows the distribution of 593 schools having students with impaired hearing. The majority of these schools (343 or 57.84 percent) have only one student recognized as hearing impaired and 127 had two students with impaired hearing. Thus, almost four out of five schools (79.3 percent) have only two students with impaired hearing. There are, however, 15 schools in the province (2.5 percent) that have 10 or more students with impaired hearing, including the Alberta School for the Deaf, which reported 92 students. In terms of the distribution of the 1,413 students, these 15 schools enroll 350 students with impaired hearing or almost one fourth (24.77 percent) of all such students. On the other hand, about one in four are the only hearing impaired students in their school. More than half (53.0 percent) are in schools with only two other hearing impaired students.

Only four schools reported 35 or more students with impaired hearing, with the single largest enrollment being 92 at the Alberta School for the Deaf.

Providing specialized services for students with impaired hearing becomes increasingly difficult as the numbers become smaller. Economically, budgeting gives such services a very high per-pupil cost, and in terms of recruiting expertise, the small numbers of students to be served impose severe limitations.

Seventeen programs in Alberta reported at least one self-contained classroom. These 17 schools house 371 students with impaired hearing, which is about a quarter (26.2 percent) of students with impaired hearing identified in this research. Table 23 lists the schools and the number of students in each. *It should be emphasized that this list represents only the period during which data was being gathered for this study.*

Table 23

Schools with Self-Contained Classes for Deaf and Hard of Hearing Students: Alberta, 1989.

School		Number of Students
All Schools		371
Grand Prairie (Zone 1)		
Crystal Park School		06
Edmonton (Zone 3)		
Alberta School for the Deaf		92
Fulton Place Elementary		11
Glenrose		45
Hospital School	11	
Preschool Program	29	
Outreach	5	
L.Y. Cairns Vocational School		14
Lendrum Elementary		34
St Andrews ECS (AHH)		12
W.P. Wagner		08
Westminster		10
Waverley Elementary		16
Calgary (Zone 5)		
Altadore		10
Queen Elizabeth Elementary		35
Queen Elizabeth High School		22
Stanley Jones		35
Van Horne High School		10
Lethbridge (Zone 6)		
John Davidson		07
R.I. Baker		04

Number of Students Per Class

The majority of teachers have only one student with impaired hearing in their classes. Table 24 shows the number of students per class for the responding teachers. Of the 505 who completed questionnaires on a total of 878 students with impaired hearing., more than two thirds (68.7 percent) had only one hearing impaired student in their classrooms. Forty-nine (9.7 percent) had two students, so nearly four out of five teachers (78.4 percent) had only one or two students who were hearing impaired in their classes. At the other extreme, 3.4 percent of the teachers served seven or more students. As would be expected these teachers were in self-contained programs for students with impaired hearing. The 26 teachers shown as having zero students were not the student's *key teacher; i.e.* they were resource, itinerant, special-subject, or similar teachers.

The substantial proportion of teachers who only have a single student with impaired hearing exacerbates the problem of low-incidence placements noted above. A teacher who has only one such student in a class averaging 32 students is unlikely to have much time to learn about educating students with impaired hearing. Their incentive to obtain specialized information and to develop particular skills is further attenuated by the fact that they may never again in their careers have a student with impaired hearing (recall the overall prevalence of these students in the Alberta school population is three per 1,000 students). The relative rarity of the condition poses a dilemma for anyone who is concerned about their education.

Table 24

Number of Deaf and Hard of Hearing Students Served Per Teacher

Number of Hearing Impaired Students per Class	Number of Teachers	Percent of Teachers
0 - 7 or more	505	100.0
0	26	5.1
1	347	68.7
2	49	9.7
3	23	4.6
4	18	3.6
5	8	1.6
6	17	3.4
7 and more	17	3.4

SUPPORT, CONSULTATION AND EVALUATION SERVICES

Serving students with impaired hearing often requires skills and/or equipment not usually available to the classroom teacher. Depending upon the degree of impaired hearing and other individual factors, the students' education may be seriously impeded by a lack of supporting services or facilitated by them. Teachers were asked about the availability of a number of these services and, also, for their assessment of them. The results are summarized in Table 25 and in Tables A.19 through A.32.

Table 25

Support, Consultation and Evaluation Services Available to Teachers

Service Type	Available			Satisfactory		
	Yes Percent	No Percent	Don't Know/No Response Percent	Yes Percent	No Percent	No Response Percent
Audiologist	48.1	11.1	40.8	38.8	6.1	55.0
Hearing Aid Monitoring	42.0	12.9	45.1	32.5	7.1	60.4
Speech Therapist	61.4	8.5	30.1	38.0	15.8	46.1
Interpreter for Deaf	18.6	29.1	52.3	19.0	5.9	75.0
Occupational/Physical Therapy	30.1	21.8	48.1	23.6	6.9	69.3
Psychologist/Guidance Counsellor	53.5	13.9	32.7	36.0	8.5	55.4
Social Worker	39.4	16.8	43.8	26.3	6.3	67.3
Consultant	51.9	11.9	36.2	34.3	6.7	59.0
Itinerant Teacher	21.8	30.1	48.1	20.6	4.2	75.2
Classroom Aide/Tutor	43.8	21.8	34.4	34.5	7.3	58.2
Notetaker	4.2	45.0	50.9	12.5	4.2	83.4
Deaf Adult	6.7	44.4	48.9	13.5	6.1	80.4
Deaf Peers	14.7	39.8	45.6	16.2	6.5	77.2
Specialized Medical	10.9	23.8	65.3	13.7	2.8	83.6

Audiology. A little less than half of the teachers (48.1 percent) stated that they had audiology services available to their students. Most of those who rated this service indicated it was satisfactory (38.8 percent) and only a few unsatisfactory (6.1 percent), but the majority (55.0 percent) did not rate it at all. A closely related service that teachers were asked about was *Hearing Aid Monitoring*. The proportion of teachers (42.0 percent) who said they had this service is similar to those who said they had audiological services, which is to be expected, since audiologists can readily provide both. The degree of satisfaction with the hearing aid monitoring is also close to that for audiological services generally.

Speech Therapy. A majority of teachers (61.4 percent) said that speech therapy was available to their students. Asked to rate the service, almost half of the teachers (46.1 percent) declined. Of those who did assess speech therapy, more were satisfied than dissatisfied by a 2:1 ratio (38.0 percent, satisfied; 15.8 percent dissatisfied).

Teachers were asked about the frequency with which their hearing impaired students received speech therapy. About one third of the students (29.5 percent) received individual therapy weekly. A few also were seen by consultants and/or participated in small-group therapy. In addition to the 15.8 percent of teachers dissatisfied with the amount of speech and language services, 45 parents wrote in comments to the effect that their children were deprived of this service. (see Table A. 66)

Interpreters. While a large share of students with impaired hearing do not use interpreters, either oral or manual, in the classroom, 18.6 percent of the teachers said that interpreters were available. The few who chose to rate interpreters (25 percent of those who said they were available) found them more often satisfactory (19.0 percent) than unsatisfactory (5.9 percent).

Occupational/Physical Therapy. Although most students with impaired hearing do not require occupation and physical therapy, some do. Three out of 10 teachers said that these services were available to their students. They indicated that the services were satisfactory in 23.6 percent of the responses and unsatisfactory in 6.9 percent, with 69.3 percent not rating them.

Psychologist/Guidance Counselor. A little more than half of the teachers said they could access psychological and counseling services for their students with impaired hearing. Of those who had such services available, 55.4 percent did not rate its satisfaction, while of those who did, the majority indicated the services were satisfactory (36.0 percent) and only 8.5 percent considered them unsatsifactory.

Social Work. A little less than four of 10 teachers (39.4 percent) said that they could obtain the services of a social worker. Two thirds (67.3 percent) did not provide their rating of this service, but 26.3 percent did say they were satisfied and 6.3 percent said they were not.

Consultants. Accessibility to specialized assistance in the areas of reading, special education, and hearing impairment was indicated by about half of the teachers (51.9 percent). While nearly 6 in 10 (59.0 percent) did not indicate how well they were satisfied with these services, the majority of those who did noted satisfaction (34.3 percent) over dissatisfaction (6.7 percent).

Itinerant Teacher. About one in five teachers (21.8 pecent) have itinerant teachers accessible to them. Three fourths of those who did chose not to rate the service. Those who did favored it more often than not (20.6 percent satisfactory; 4.2 percent not satisfactory).

Classroom Aides and Tutors. Assistants were given to 43.8 percent of the teachers. For those teachers who expressed degrees of satsifaction, most were satsified (34.5 percent). However, less than half (41.8 percent) gave their opinions of these services.

Medical. Special medical services might include otolaryngology and other specialties that students with impaired hearing might need. Only 1 in 10 of the teachers (10.9 percent) said these services were at hand. Only a tiny fragment of the small number having the services rated them as to satisfaction (16.4 percent), but they assessed them as satisfactory at a 5:1 ratio over unsatisfactory (13.7 percent to 2.8 percent).

Other. Though not strictly services, some teachers expressed a desire for hearing impaired role models for their students with impaired hearing. Deaf adults were noted as available to 6.7 percent of the teachers. Deaf peers, however, were available to 14.7 percent. As with interpreters, few students with impaired hearing use notetakers. Only 4.2 percent of the teachers report that they were available.

It should be recognized that the Don't Know/No Response category under available and satisfactory are probably related since if the teachers do not know what is available they cannot respond as to whether it is satisfactory.

Assessment Services

School administrators were asked about the availability of assessment services they could provide to students with impaired hearing. The results are shown in Table 26. Of the schools responding, 29.2 percent did not have audiological testing available. More schools had hearing and vision screening programs, but a large number did not. Most schools did not have social-esteem screening. Of the schools with self contained programs completing questionnaires (15) responses regarding audiological testing, hearing and vision screening were much closer to 100 percent. 13 had audiological testing 14 hearing screening, and all had vision screening. There were eight reporting social esteem screening.

Table 26

Administrators' Report on Availability of Assessment Services for Hearing Impaired Students

Type of Assessment	Available Percent	Not Available Percent	No Response Percent
All Reporting N = 593			
Audiological Testing	29.2	13.5	57.3
Hearing Screening	35.1	9.4	55.5
Vision Screening	33.9	9.8	56.3
Social Esteem Screening	14.7	22.3	63.1

Achievement Testing Program

According to the teachers who provided this information, about half of the students with impaired hearing participated in the province's regular achievement testing programs for Grades 3, 6, and 9 (Table 27). All students in the province are to be given these tests at the appropriate time. It may be that the teacher's negative responses reflected the fact that their hearing impaired students were not at the appropriate grade level for the Achievement testing and the rotational scheduling of these assessments.

Table 27

Participation of Students with Impaired Hearing in Alberta Achievement Testing Program for Grades 3, 6 and 9

Participation	Number	Degree of Participation
All	505	100.0
Yes	201	39.8
No	97	19.2
Don't Know	66	13.1
No Response	141	27.9

Amplification/Technical Devices Available to Teachers for Use With Deaf and Hard of Hearing Students

Students with impaired hearing often function much better when they do not have to depend entirely upon their hearing aids for communication. Some listening conditions tend to defeat the ability of a hearing aid to amplify the speech signals students want to hear without simultaneously amplifying noise. Modern technology offers a number of options in such circumstances: FM systems are most frequently favored in classrooms. Other equipment specially designed to aid persons with impaired hearing are television caption decoders, telephone devices for the deaf (TDD), and visual alarms. Computers, since they are designed to be seen and not heard, are also considered particularly amenable to the instruction of persons with impaired hearing. Teachers were asked if this equipment was available to them, if they used it, and, if it was not available, was it needed. Table 28 summarizes their replies.

Table 28

Availability of Technical Devices to Teachers

Type of Technical Device	Available Percent	Not Available Percent	No Response Percent
FM Systems	40.0	22.4	37.6
Television Caption Decoder	10.7	44.4	45.0
Telephone Device for Deaf	10.3	46.5	43.2
Computer	45.0	17.6	37.4
Visible Fire Alarm	8.7	48.5	42.8

FM Systems. Forty percent of the teachers said that they had FM systems. Of those who did have them, 29.1 percent said they used them, 16.6 percent that they did not, and 54.5 percent did not reply to that part of the question Of the 22.4 percent who said that they did not have an FM system, only 17.8 percent felt it was needed, 21.6 percent did not, and 60.6 percent did not reply. (Table A.33.)

Television Caption Decoder. Only 10.7 percent said that this equipment was available, and of that small number, only 7.3 percent said they used it, compared to 20.2 percent who did not , and 72.5 percent who did not answer that part of the question. More than 4 out of 10 teachers (44.4 percent) said caption decoders were not available, and 45.0 percent did not provide any information. Of those who did not have caption decoders, only 9.1 percent thought they were needed, while 28.7 percent did not. (Table A.34.)

Telephone Device for the Deaf (TDD) The TDD enables persons who cannot use regular telephones to send and receive messages visually on the same telephone lines. To do so requires TDDs at both ends of the conversation. Only 10.3 percent of teachers said such equipment was available in their schools; 46.5 percent said it was not. Of those who did not have the equipment, 7.3 percent said it was needed, 30.5 percent that it was not needed, and 62.2 percent declined to give an opinion. (Table A.35.)

Computers. Computers were available to 45.0 percent of teachers, and 31.5 of them said they used them. Of the 17.6 percent of those who did not have computers, 16.4 percent felt they were needed, an almost equal number felt they were not, and two thirds did not respond to that part of the question. (Table A.37.)

Visible Fire Alarms. An attachment to the school's fire alarm system that provides a flashing light to signal its onset was only available in 8.7 percent of the classrooms for students with impaired hearing. Almost half of the teachers said such alarms were not available, 10.9 percent believed they should be, 27.9 percent believed they should not, and 61.2 percent gave no reply. (Table A.39.)

Teachers were asked to specify other amplification and technical devices that would be helpful for them in their work with deaf and hard of hearing students. An interesting list was submitted (Table 38). Noted were such items as need for full-time aide and smaller classes to allow the students individualized help and the need for suggestions and strategies for helping deaf and hard of hearing students. There were some requests for more information regarding what is available.

Section IV. Administrator Data

Education and Experience. As would be expected, administrators tend to have many years of experience and good educational backgrounds. Of the 593 schools having one or more hearing impaired students, about half their administrators (43.5 percent) provided information about themselves (Table 29). Of those who answered the question about their earned academic degrees, more than half (135 of 258) had earned an advanced degree. None reported having less than a bachelor's degree. They averaged more than 20 years in the field of education, and had, on the average, about 4 years experience in the schools they were heading. (Tables A.39, A.40, and A.41). For comments about their attendance at training programs and their positions, see Table A.42 and A.43).

Table 29

Administrators' Highest Earned Academic Degree: Alberta, 1990.

Highest Academic Degree	Number of Administrators Reporting	Percentage
All Reporting	593	100.0
Bachelors Degree	123	20.7
Master's Degree	131	22.1
Doctorate	4	.7
No Response	335	56.5

Comparison Between Self Contained and Other Schools. There were some differences between the administrators who were responsible for schools with self contained programs for deaf and hard of hearing students and those administering schools where the students were integrated; 64.3 percent of those in self contained schools had a master's degrees and 7.1 percent a doctorate, compared to 47.9 percent and 1.4 percent of the Others.

Familiarity with Hearing Impairment. Most of the administrators in integrated programs were unaware of organizations for parents of children with impaired hearing (Table A.48). Of the 28 who stated they were aware of such organizations, 15 were schools with self-contained classes. They were, however, very much aware of the Deaf Community services and activities (Table A.49). Comparatively, 63 percent of administrators in self-contained programs and 9.4 percent in all schools were aware of the Deaf community.

Community Involvement. Almost none of the administrators had deaf adults involved in their programming for students with impaired hearing. However, this point shifted when the administrators were divided between those heading schools with self-contained classrooms: six of 10 administrators of special schools involved deaf adults, while only seven of 238 heads of regular schools did (Table A.50).

Placement of Hearing Impaired Students. Administrators were satisfied that they serve the hearing impaired students in their schools appropriately. They were asked if they had any students in their program who would be better placed in another setting. Of the 276 administrators responding, only 20 answered yes, with reference to 34 students. Four schools with special programs for the hearing impaired accounted for 16 of those students. One principal noted that the students had significant other handicaps and seven of the students were on the secondary level.

Administrators were asked about their experiences with direct service agencies that could provide assistance to families and students. Administrators responded for their particular location (Table 30). There was consensus that the listed agencies provided satisfactory services. The only comments regarding these services were from a few parents who felt that staff with sign language ability should be available to work with their deaf children who used sign as their primary language. The administrators were unanimous in their expressions of satisfaction with the services they received from these various agencies, with not one of those rating the service indicating any dissatisfaction with it.

Table 30

Number of Administrators Using Service Agencies: Frequency of Satisfaction: Alberta 1990.

Service Agency	Number of Administrators Using Agency
Glenrose Hospital (Edmonton)	96
Alberta Children's Hospital (Calgary)	84
CASE (Grand Prairie)	16
CNIB (Canadian National Institute for the Blind)	28
EPSB Outreach Service (Edmonton)	65
REACH (Calgary)	56
Local Health Agencies	185

In addition to the agencies shown in Table 30, School District Specialist staff and St. Albert Community Support Services were noted by the administrators as having provided them with services. Another administrator noted that private colleges were also available for hearing impaired students. Administrators were asked if training were available to improve the skills of their staff (Table A.18). Most noted in both integrated and self-contained classrooms was the availability of consulting teachers. School administrators also mentioned consultants from REACH, their own speech therapist, the Education Response Center and district professional development. (See also Table A.60, A.61 and A.62 for information regarding training of staff).

Satisfaction with Resources Available. With specific regard to programs and services for their hearing impaired students, administrators expressed a high degree of satisfaction with assessment, equipment, and material provisions (Table 31). They were less satisfied with their budgets and the amount of building space.

Table 31

Administrators' Satisfaction with Resources Available for Deaf and Hard of Hearing Students

N = 593

Resources Available	Administrator Satisfaction					
	Yes		No		No Response	
	Number	Percent	Number	Percent	Number	Percent
Satisfaction with Presently Available Assessment Provisions	201	33.9	34	5.7	358	60.4
Ability to Fill Teacher's Requests for Equipment	190	32.0	33	5.6	370	62.4
Ability to Fill Teacher's Requests for Materials	192	32.4	28	4.7	373	62.9
Present budget adequate to Provide Special Services	140	23.6	75	12.6	378	63.7
Building Space Available for Special Services Students Might Need	143	24.1	71	12.0	379	63.9

Involvement of Deaf Adults in Program with Hearing Impaired Students. There were 13 administrators reporting that deaf adults were involved with their students. Of that number, six were programs that had self contained classes.

Program Administration. Almost two out of three programs develop Individual Program Plans (IPP) for their students with impaired hearing. A sizable number, however, do not (Table 32). Among the self contained programs all 15 reporting stated that they developed IPP's for their students.

Table 32

Development of Individual Program Plans for Deaf and Hard of Hearing Students

Provision of IPP's	Number	Percent
All Reporting	593	100.0
Yes	165	27.8
No	90	15.2
Don't Know	338	57.0

Knowledge of Postsecondary Programs. Administrators were queried about their knowledge of programs that were available for students upon the time they would be leaving school. They were also asked whether these programs might have special support services available for students who were deaf or hard of hearing. Tables A.52 to A.57 present their responses in detail. It is of note that there were an overwhelming number of Don't Know and No Response answers ranging from 77.9 to 80.1 percent for whether programs were available and 88.6 to 93.4 percent for whether special support services were available. Although part of the reason for this response rate might be due to lack of information on the part of administrators concerned primarily with elementary school students it is certainly an area that should be investigated further.

Problems. In general, it appeared that when the students had a mild hearing impairment and caused no problem, or when support services were available, that administrators could cope very well. Some asked for the steps to follow when they had a deaf or hard or hearing student placed in their school. They wanted to know how to help the parents and the teachers. Especially, what to do if there was a student with a severe problem or a special crisis. Those who had access to support personnel were appreciative and seemed to indicate that this helped the students in the integration process. In the 17 schools with self-contained programs nine schools had problems recruiting, four with maintaining staff, five with staff morale, five with providing inservice training opportunities and nine with finding qualified interpreters. Other problems noted by school administrators were dealing with parents, support services for teens, counseling for teens and comprehensive family services.

Table A.23 includes additional comments by 82 administrators.

Table 33

Administrators' Views of Possible Problems in Programs for Hearing Impaired Students

Type of Problems	Yes		No		No Response	
	Number	Percent	Number	Percent	Number	Percent
Recruiting Trained Teachers	60	10.1	137	23.1	396	66.8
Maintaining Staff	22	3.7	177	29.8	394	66.4
Staff Morale	22	3.7	177	29.8	394	66.4
Inservice Training Opportunities	61	10.3	138	23.3	394	66.4
Finding Qualified Interpreters	47	7.7	109	18.4	437	73.7

Of the 15 schools with self contained programs for the hearing impaired submitting questionnaires, 60.0 percent had problems recruiting trained teachers, 27.0 percent maintaining staff, 40.0 percent with staff morale, 27.0 percent providing inservice training opportunities and 60.0 percent finding qualified interpreters.

Section V. TEACHER DATA

Education and Experience. Teachers of students with impaired hearing tend to be well-educated and have substantial teaching experience. As shown in Table 34, almost 6 in 10 (59.2 percent) have bachelors degrees and 12.9 percent have advanced degrees. Forty-three percent have 10 or more years of teaching experience. With respect to special preparation to teach students with impaired hearing, 24.8 percent said they have received training, 50.7 percent that they have not, and 24.6 percent did not reply. There were 39 teachers who held degrees in Deaf Education. For those who had other specialized training, most (92.0 percent) had received some from a consultant, many (88.0 percent) from one or more workshops, and more than half (52.0 percent) from courses in teacher-training programs.

Table 34

Highest Academic Degree Earned by Teachers of Hearing Impaired Students

Highest Academic Degree	Number of Teachers Reporting	Percentage
All Reporting	505	100.0
Less than Bachelor's Degree	20	4.0
Bachelor's Degree	299	59.2
Master's Degree	64	12.7
Doctor's Degree	1	.2
No Response	121	24.0

Experience. Teachers of students with impaired hearing had considerable experience in education. The average teacher had about 12 years classroom experience (Table 35). The average teacher had been in the school in which they were teaching at the time of this survey about 3 years (Table A.59).

Table 35

Years of Experience of Teachers of Students with Impaired Hearing

Years Teaching	Number of Teachers
All reporting	505
1 to 2	31
3 to 5	52
6 to 9	78
10 to 20	159
More than 20	58
No Response	127

Regarding special training in the education of hearing impaired students, the majority of teachers had none. However, 125 of 381 did say they had some (Table A.60). Most of the training was in workshops and through contacts with consultants. A little more than half of those answering indicated they had taken one or more relevant courses (Tables A.61 and A.62).

Hearing Ability. A small portion (5.7 percent) of the teachers had impaired hearing. Of that number, almost half (12 of 29) regard themselves as deaf. *All* but two of these teachers were employed in schools with self contained programs (Table A.63).

Teachers in Self Contained Programs. Of the total number of 505 teachers reporting, 61 (20 percent) were employed in the programs which had one or more self contained classes. Some additional information was obtained about this group. In general, they were more experienced, specifically so with the hearing impaired. They also had more training in the area of deafness. Almost 47.5 percent of the 61 teachers reporting had a master's degree (compared to 12.7 percent of the total group), 59 percent (36 of the teachers) had more than ten years experience, 75.4 percent had special training in working with students with impaired hearing and 50.8 percent had a degree in deaf education. The teachers in the 17 self contained programs reporting accounted for 46 of the 125 teachers having special training (Table A.60), 29 of the 65 taking courses in teacher training programs and 31 of the 39 having degrees in deaf education (Table A.61).

Professional Affiliations. By and large, the teachers of students with impaired hearing seldom join organizations that deal specifically with educating such students (Table 46). Given a list of organizations to check off only a few reported memberships in organizations related to hearing impairment. However, 317 are members of the Alberta Teachers Association. The list in Table A.46 gives some indication of membership in groups related to the education of the deaf and hard of hearing.

The most widely read journal among teachers who have students with impaired hearing was *American Annals of the Deaf* (36 readers), followed by the *Volta Review* (31), *Canadian Journal of the Deaf* (22) and *Alberta Signal* (21) (Table A.47). The latter two journals are publications of organizations of deaf people: the Canadian Association of the Deaf and the Alberta Association of the Deaf, respectively. While both contain information pertinent to the education of deaf students, neither is an educational journal per se.

Involvement in Deaf Affairs. Teachers of students with impaired hearing seem unfamiliar with and uninvolved in organizations of deaf persons (Table A.64). Asked about their knowledge of organizations of deaf people in their area, 56.8 percent said they had none, 18.8 percent said they knew of one or more, and 24.4 percent did not respond. With regard to their attendance at meetings of such organizations, 3.4 percent said they attended occasionally or frequently, 2.6 percent rarely, 31.9 percent never, and 62.2 percent gave no estimate of their attendance (Table A.65).

Familiarity with Alberta Education Material. Teachers of hearing impaired students showed varying degrees of familiarity with a wide variety of educational materials from the province (Table A.45). They also expressed the degree to which they found each useful.

Familiarity with Hearing Impaired Students in Classrooms. Teachers were asked how many months they had known each of the hearing impaired students for whom they had key responsibility. A bit more than half of the teachers (51.4 percent) had known the hearing

impaired students in their classes 12 or fewer months. About a quarter (24.5 percent) had known these students for less than four months (Table 36). Sixteen percent of the teachers had taught the same student for more than two years.

Table 36

Number of Months Teacher Has Known Hearing Impaired Student

Months Teacher Has known Student	Number of Students All = 878	Percentage of Students 100%
0-3	215	24.5
4-6	181	20.7
7-12	55	6.2
13-24	154	17.6
25-48	90	11.2
50-99	43	4.8
No response	140	15.9

Figure 6 is a graphic representation of how many months teachers had known the deaf and hard of hearing students ranging up to 99 months or more.

Figure 6

Percentage of Students Known in Each Time Period

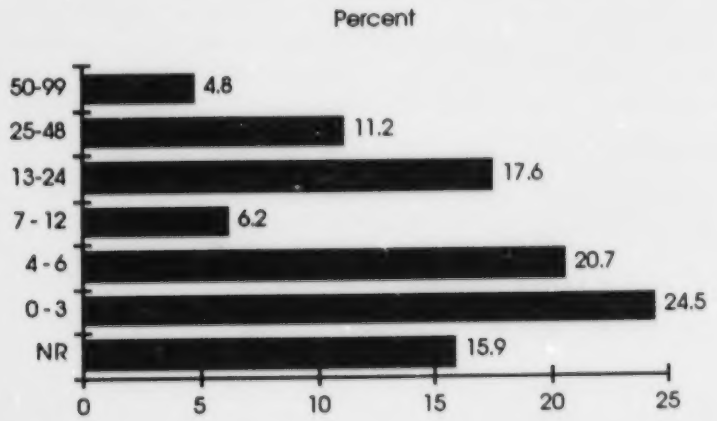


Table A. 68 lists additional comments by teachers.

Section VI. Parent Data

A total of 502 parents returned questionnaires about their children with impaired hearing. The children represented 35.5 percent of the 1,413 identified students with impaired hearing in Alberta. They attended 211 different schools.

Parental Concerns. Parents most often worried about obtaining educational and recreational services, with parents whose children had the most severe hearing loss, the most concerned. The group also had concerns about their childs wearing of hearing aids and communication with their child. There is a difference depending on the student's degree of hearing loss as is seen on Table 37. For a listing of additional concerns, see Table A.71.

Table 37

Current Parental Concerns by Degree of Hearing Loss

Concern	Good	Some Trouble	Much Trouble	Deaf	Total
All Students	112	193	80	99	484
Dx and Treatment-Hearing	4	11	8	4	27
Fitting Hearing Aids	9	7	7	7	30
Repairing Hearing Aids	14	30	15	10	69
Wearing of Hearing Aids	13	16	14	22	65
Dx and Treatment-Vision	2	1	0	2	5
Purchasing Glasses	1	2	2	2	7
Educational Services	9	30	20	20	86
Recreational Services	7	23	38	40	108
Communication with Child	5	22	21	23	71

Assistive Devices in the Home. Students with impaired hearing do not seem to be partaking fully of the technology that has been developed over the past three decades for the benefit of those who have reduced or absent hearing. Parents indicated relatively few assistive devices in their homes. The most commonly used by hearing impaired persons are FM systems, amplified telephones, television-caption decoders and telephonic devices for the deaf (TDD). The latter enables people who cannot hear to use the telephone, while the decoder makes visible captions accompanying many of the television programs broadcast over the networks and a fair amount of local programming, including educational broadcasts. The use of such devices is influenced by the degree of the students' hearing loss as is seen in Table 38 where the number of students whose degree of loss as reported by parents is compared to the number of devices available in the home. Additional devices used in the home are listed in Table A.70.

Table 38

Assistive Devices in the Home by Degree of Hearing Loss

Type of Device	Good	Some Trouble	Much Trouble	Deaf	Total Number
All Students	112	193	80	99	484
Amplified Phone	28	51	12	5	96
TV Caption Decoder	10	22	28	52	112
TDD	5	15	22	52	94
FM System	23	64	29	15	131
Bell or Phone Lights	31	6	6	12	25
Flashing Smoke Detector	4	6	7	5	22

Satisfaction with Child's Educational Progress. Parent satisfaction seemed to reflect degree of hearing loss also, with those who had children with less severe losses showing porportionally more satisfaction as shown in Table 39.

Table 39

Degree of Satisfaction with Education by Degree of Hearing Loss

Satisfaction	Good	Some Trouble	Much Trouble	Deaf	Total
All Students	112	193	80	99	484
Completely Satisfied	78	111	36	36	261
Partial /Not Satisfied	30	70	42	46	188
Total	108	181	78	82	449

Parental Affiliations. Only a relatively small portion of the parents of hearing impaired students belonged to organizations whose principal focus was on hearing impairment. The most frequently mentioned (19 times) was Glenrose Hospital. Alberta Aids to Daily Living was the only other organization mentioned more than twice (Table 69).

Comments were volunteered by 54 parents to the effect that they were pleased with their children's educational progress. Satisfaction related to: the availability of personal aides, amplification devices, appropriate and sufficient therapies and teachers who understood the problem and related well to their child., In several cases, parents noted that their child did not have a major handicap and in fact needed little, if any, special attention. The negative comments were almost a mirror image of the positive ones. When therapy and other services were not programmed on a regular basis, equipment was not available or nonfunctioning and aides and trained teachers were absent, parents were frustrated and unhappy. The most common problem stated was lack of speech therapy services (45 parents) which the parents stated was a high priority for their children.

A complete list of parent comments appears in Table A.72.

Section VII. Methodology

Data were gathered between October 1989 and March 1990 by the Alberta Education Response Center (ERC) pursuant to a need expressed by both consumers and government officials. The purpose was to ascertain the demographic characteristics of this population and to survey their educational status and needs.

Specifically the objectives of the study were:

1.0 To identify each deaf and hard of hearing student in Alberta from preschool through high school.

2.0 To determine the nature of education each student is receiving.
- 2.1 To describe the type of program in which they are enrolled and the type and amount of specialized services they are receiving.
- 2.2 To describe the type of communication used in the classroom and with peers.
- 2.3 To describe the related training and experience of staff who are serving the students
- 2.4 To study other aspects of programming such as involvement in intra and extracurricular activities.
- 2.5 To collect data on student performance.
- 2.6 To describe administrative and supervisory support being provided.

3.0 To determine level of satisfaction with services being provided on the part of administrators, teachers and parents.
- 3.1 To describe level of satisfaction with general education being provided.
- 3.2 To describe level of satisfaction with support services being provided.
- 3.3 To describe level of satisfaction with technical services being provided.

4.0 To describe the level of respondents' knowledge about aspects of deafness such as the deaf community, organizations and literature available.

5.0 To determine the use and adequacy of current Alberta Education curricular and support documents and services.

In the planning stage of the study, a steering committee was appointed to provide input and review progress on an ongoing basis. The committee included consumers, parents and professionals in the field of hearing impairment (see Acknowledgements).

The study had two parts. Study I was a survey of all schools in Alberta to determine the location of as many deaf and hard of hearing students as possible. Study II was based on questionnaires sent to those schools that reported serving hearing impaired students. The purpose was to obtain information from administrators of school programs, teachers of deaf and hard of hearing students and the parents of those students. All data in this report reflects what is known by the respondents.

STUDY I

Study I was preceded by a letter to school superintendents in each jurisdiction informing them of the purpose and nature of the study. This was to ensure that they were knowledgeable about the study and to obtain cooperation from their constituent schools. They, as well as others requested to participate in the study, were assured that no personally identifiable data would be published. All data would be reported as aggregates, and comments would be edited to exclude any statements that could identify the individual reporting or being reported upon.

Alberta Education Information Services keeps a current roster of all schools in the province. From this master list a total of 1,915 schools providing Early Childhood Services (ECS), elementary and secondary education were selected. Schools excluded offered postsecondary programs, provided a temporary service or a secondary service, such as language instruction, tutorial assistance, driver education and the like. Accounting for schools that closed or did not meet the definition of a *regular* school, 18 units were eliminated to yield a final total of 1,897.

Each of the 1,897 schools was sent a form requesting the school administrator identify the number of deaf or hearing impaired students having any degree of hearing loss based on the September 30, 1989 enrollment. The hearing loss could be of any degree, binaural, monaural, or temporary, or in in conjunction with any other handicap. Administrators were also requested to provide the number of teachers in the school who had primary responsibility for each of those students. Results of the mailings appear in Table 40.

Response Rates

Of the 1,897 schools sent questionnaires, 1,694 replied—a response rate for schools of 89.3 percent. However, the response rate based on numbers of students is much higher. The 203 schools *not* responding had total enrollments of 27,176 students or 5.5 percent of the 495,074 students enrolled in Alberta's schools. Thus, the response rate for all students in Alberta schools is 94.5 percent.

Table 40

Administrator Forms Mailed, Number and Percent of Response, and Number and Percent of Respondents having Students With Impaired Hearing: Alberta, 1989.

	Number	Percent
Survey forms sent	1,897	100.0
Administrators returning survey forms	1,694	89.3
Administrators not responding	203	10.7
Administrators reporting hearing impaired students	593	31.0
Administrators reporting no hearing impaired students	1,101	58.0

STUDY II

Every school reporting a student with any degree of hearing loss was sent a package of forms: one for the administrator, one for each teacher who served one or more of the students, and one for parents of each student. If a parent had two or more children with a hearing impairment, they were asked to complete a separate questionnaire for each. The administrator was instructed to distribute the questionnaires to teachers and parents who were instructed to return them directly to the ERC for analysis. Included with each questionnaire was a stamped, addressed return envelope together with a sheet of instructions and a note to the recipient stating that if there were any questions they could call project staff at the Education Response Centre.

Table 41 lists the number of responses. Questionnaires were received from 276 administrators, 505 teachers and 502 parents. The 505 teachers returning questionnaires reported on a total of 878 students in their classrooms. Matched questionnaires, that is where both a parent and teacher reported on the same child, were received on 498 students.

Subsample Response Rates: There were 593 Questionnaires sent to administrators who stated that they had hearing impaired students in their schools. Of that number 296 returned forms, and 317 did not return forms.

Table 41

Distribution of Questionnaires Returned by Type of Respondent

Respondent	Number Sent	Number Returned
Administrator	593	276
Teacher	—*	505
Parent	—*	502

* Since questionnaires were distributed by administrators there is no way of knowing how many were actually sent to the parents.

The administrator of each school that reported having at least one hearing impaired student was sent an appropriate number of questionnaires to ascertain pertinent information from the teachers about their hearing impaired students and about themselves. An appropriate number of questionnaires were also provided to the administrators for the parents of each hearing impaired student.

Validity and Reliability

A number of internal checks have been made to assess the validity of the responses. Some concordance of estimates have already been reported; for example, see the degree of apparent agreement between teachers' and parents' ratings of students' hearing abilities. Other relations are shown in Table 41.

When interpreting the correlations (Pearson Product-Moment Correlation Coefficients) the reader should bear in mind that the data were restricted to four response categories. The limitations on the degrees of freedom imposed by a four-by-four matrix substantially attenuate the computed correlations. Agreement appears adequate except for the areas of Vocational Readiness and Use of Speech where the correlation is not as high.

Table 41

Correlations between Parents' and Teachers' Judgments About Hearing Impaired Students

Area Judged	Correlation Coefficient	Probability
Vision	0.5277	<.001
School achievement		
Daily Living Skills	0.3031	<.001
Reading Ability	0.6050	<.001
Writing Ability	0.5653	<.001
Social Studies	0.4246	<.001
Mathematics	0.5828	<.001
Science	0.5221	<.001
Physical Education	0.3497	<.001
Vocational Readiness	0.1907	015
Highest Academic Achievement Expected	0.5672	<.001
Communication used		
Use of Speech	0.1141	025
Use of Signing	0.3795	<.001
Use of SimCom	0.2870	<.001

APPENDIX

Table A.1

Hearing Impaired Students, by Gender, Birth Year and Degree of Impaired Hearing: 1990

		Degree of Impaired Hearing			
Birth Year/Gender	All Degrees	Mild	Moderate	Severe	Profound
BOTH GENDERS					
1969-1988	**742**	**122**	**306**	**159**	**155**
1969	2	1	0	0	1
1970	10	1	2	1	6
1971	30	1	9	7	13
1972	26	2	9	4	11
1973	35	4	20	5	6
1974	36	5	17	7	7
1975	67	12	29	14	12
1976	39	5	17	9	8
1977	42	8	20	9	5
1978	68	7	34	9	18
1979	67	7	34	15	11
1980	74	20	29	15	10
1981	45	7	18	12	8
1982	62	18	24	14	6
1983	50	10	19	12	9
1984	31	4	15	4	8
1985	26	5	6	8	7
1986	19	4	1	9	5
1987	10	0	3	4	3
1988	2	0	0	1	1
MALES					
1969-1988	**408**	**73**	**164**	**96**	**75**
1969	1	1	0	0	0
1970	3	0	2	0	1
1971	17	1	3	5	8
1972	14	1	4	3	6
1973	24	2	17	3	2
1974	23	5	12	2	4
1975	34	7	16	6	5
1976	21	4	8	6	3
1977	31	5	15	7	4
1978	31	4	15	6	6
1979	37	3	18	10	6
1980	42	14	15	8	5
1981	25	6	9	7	3
1982	31	7	11	10	3
1983	27	5	5	10	7
1984	14	2	8	0	4
1985	16	3	3	5	5
1986	10	2	0	5	3
1987	5	0	3	2	0
1988	1	0	0	1	0
FEMALES					
1969-1988	**334**	**49**	**142**	**63**	**80**
1969	1	0	0	0	1
1970	7	1	0	1	5
1971	13	0	6	2	5
1972	12	1	5	1	5
1973	11	2	3	2	4
1974	13	0	5	5	3
1975	33	5	13	8	7
1976	18	1	9	3	5
1977	11	3	5	2	1
1978	37	3	19	3	12
1979	30	4	16	5	5
1980	32	6	14	7	5
1981	20	1	9	5	5
1982	31	11	13	4	3
1983	23	5	14	2	2
1984	17	2	7	4	4
1985	10	2	3	2	2
1986	9	2	4	4	2
1987	5	0	2	2	3
1988	1	0	0	0	1

Table A.2
Number of Students with Impaired Hearing, by Their Birth Year, Degree of Impaired Hearing, and Age at Onset

	All	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Age at Onset						**Hearing is Good (N = 94)**									
Birth	58	-	1	3	2	7	1	5	6	5	10	5	5	4	4
<3.5	17	-	-	-	1	1	-	1	-	2	2	2	4	4	-
≥3.5	19	-	-	-	1	3	1	1	2	5	1	2	1	2	-
	90	-	1	3	4	11	2	7	8	12	13	9	10	10	4
Age at Onset						**Some Trouble Hearing (N = 172)**									
Birth	105	3	2	5	5	11	4	4	10	13	15	9	14	7	3
<3.5	39	-	1	2	3	1	2	3	3	3	4	7	6	3	1
≥ 3.5	28	-	2	3	2	2	2	2	3	4	2	2	4	-	-
	172	3	5	10	10	14	8	9	16	20	21	18	24	10	4
Age at Onset						**Much Trouble Hearing (N = 65)**									
Birth	49	5	1	2	1	3	2	4	1	6	4	4	4	5	7
<3.5	14	2	-	1	-	2	-	1	1	-	2	1	1	2	1
≥ 3.5	2	-	-	-	-	-	1	-	-	1	-	-	-	-	-
	65	7	1	3	1	5	3	5	2	7	6	5	5	7	8
Age at Onset						**Student is Deaf (N = 82)**									
Birth	57	5	4	3	2	12	4	1	8	4	3	3	2	3	3
<3.5	19	1	2	1	2	2	-	1	2	-	4	2	-	-	2
≥ 3.5	6	1	2	-	-	-	-	-	-	1	-	-	-	2	-
	82	7	8	4	4	14	4	2	10	5	7	5	2	5	5
TOTAL	**413**	**17**	**15**	**20**	**19**	**44**	**17**	**23**	**36**	**44**	**47**	**37**	**41**	**32**	**21**

Table A.3
Parent Report of Probable Cause of Deafness or Hard of Hearing by Type: Alberta, 1990.

Probable Cause of Deafness or Hard of Hearing	Number	Percent
All reporting	502	100.0
Heredity	**125**	**24.9**
Unspecified syndrome	78	15.5
Congenital/unknown cause	30	6.0
Congenital malformation	8	1.6
Heredity/specified	9	1.8
Infections	**109**	**21.8**
Maternal Rubella	40	8.0
Meningitis	33	6.6
Other high fevers and infections	22	4.4
Encephalitis	2	0.4
Other maternal infections	2	0.4
Mumps	1	0.2
Cytomegalovirus	9	1.8
Otitis media// Fluid in ears	**24**	**4.8**
Other	**45**	**9.0**
Congenital deafness , unspecified	21	4.2
Trauma at birth	9	1.8
Maternal use of otoxic drugs	5	1.0
Otoxic drugs (chemotherapy)	5	1.0
Hyperbilirubinemia	4	0.8
Other maternal causation	1	0.2
Cause unknown / no response	**199**	**39.6**

Table A.4
Incidence of Rubella in Alberta by Year Department of Health, 1990.

Year	Number	Year	Number
1969-1987	31,436	1978	861
1969	1,223	1979	3,042
1970	3,188	1980	815
1971	5,982	1981	718
1972	948	1982	947
1973	718	1983	3,726
1974	1,001	1984	514
1975	4,683	1985	436
1976	714	1986	1,156
1977	376	1987	388

Source: *Communicable Disease Control and Epidemiology*. Alberta Health.
(Note: This table reflects all reported cases of Rubella. It is not known how many pregnant females were affected)

Table A.5
Hearing Impairment Among First-Order Family Members: Mother, Father, Siblings: Alberta, 1990
N = 502

Family Members Hearing Impaired	Mother		Father		Siblings	
	Number	Percent	Number	Percent	Number	Percent
No	434	86.5	416	82.9	388	77.3
Hard of Hearing	28	5.6	27	5.4	49	9.8
Deaf	13	2.6	20	4.0	26	5.2
No Response	27	5.4	39	7.8	39	7.8

Table A.6
Parental Report of Additional Family Members With a Hearing Impairment

Student Use of Hearing Aid	Number	Percent
All reporting	502	100.00
Yes*	167	33.3
Aunt	34	6.8
Uncle	35	7.0
Cousin	41	8.2
Grandmother	60	12.0
Grandfather	84	16.7
No	308	61.4
No Response	27	5.4

*Some parents reported more than one additional relative with hearing impairment

Table A.7
Parental Report of Child's Current Vision With Best Correction

Degree of Visual Impairment	Number	Percent
All reporting	502	100.0
Vision is Good	174	34.7
Some trouble seeing	33	6.6
Much trouble seeing	7	1.4
Childis Blind	3	0.6
No Response	285	56.8

Table A.8
Number of Hearing Impaired Students with Impaired Vision
Combined Parent and Teacher reports

Degree of Visual Impairment	Number	Percent
All reporting	899	100.0
Vision is Good	555	61.7
Some trouble seeing	67	7.5
Much trouble seeing	12	1.3
Student is Blind	7	.8
No Response	258	28.7

Table A.9
Teachers' Report of Disabling Conditions Other than Hearing or Visual Impairment: Alberta, 1990

Conditions Other Than Deafness or Blindness	Number	Percent
All reported	878	100.0
Behavior or Emotional Problem Requiring Professional Help	112	12.8
Physical Problem (other than vision or hearing disorder)	100	11.4
Learning Disability	170	19.4
Mental Handicap	80	9.1
Gifted or Special Talent	42	4.8

Table A.10
Parents' Report of Conditions Other than Deafness or Blindness: Alberta, 1990

Conditions Other Than Deafness or Blindness	Number	Percent
All reporting	502	100.0
Behavior or Emotional Problem Requiring Professional Help	49	9.8
Physical Handicap(Specify)	50	10.0
Cerebral Palsy	7	
Seizure Disorder	4	
Cleft Palate	3	
Asthma	2	
Difficulty Gross Motor Skills	2	
Malformed ear/Congenital Atresia	2	
Respiratory Aid Required	2	
Allergies	1	
Arms (fusion of ulna and radius)	1	
External Deformities	1	
Liver Disorder	1	
Rubella syndrome (underdeveloped)	1	
Totally Dependent	1	
Not specified	22	
Learning Disability	106	21.1
Mental Handicap	21	4.2
Gifted or Special Talent	52	10.4

Table A .11
Other Types of Communication Used to Communicate With Deaf and Hard of Hearing Students: Alberta Teachers, 1990.

Communication Method	Number
Pictures/drawing	4
Gestures	3
American Sign Language (ASL)	3
Acting out/motions/demonstrations	3
Body language	2
Drama	2
Aides who sign	2
PIC symbols	1
Modeling for student	1
All forms	1

Table A.12
Parents' Report of Language Other than English Used to Communicate in the Home: Alberta, 1990

American Sign Language (ASL)	27
Pigeon Signed English (PSE)	6
Chippewayan	4
French	4
Chinese	3
German	3
Cree	2
Punjabi	2
Spanish	2
Vietnamese	2
Hindi	1
Dutch	1
Pushto	1
Tagalog	1
Arabic	1
Portuguese	1

Table A.13
Number of Parents Reporting Other Types of Communication Used by Family Members: Alberta, 1990

Lip reading/speech reading	9
Body language (pointing, mime, acting out)	5
American sign language (ASL)	3
Demonstration	3
Drawings/visual	2
Touching	2
Banging/creating vibrations to get attention	1
Cued Speech	1
Flick lights off and on	1
Phone and alarm light	1
Speaking	1
Writing	1

Table A.14
Parents Report of Other Types of Communication Used by Students Alberta, 1990

Lip reading	9
Gestures/mime/body language	9
American Sgn Language (ASL)	4
Pictures/drawing	2
British Sign Language (BSL)	1
Cued Speech	1
Repetition	1

Table 15
Parent's Report of School and Community Activities in Which Hearing Impaired Student is Involved

Activity	School		Community	
	Number	Percent	Number	Percent
Social Clubs	68	13.5	96	19.1
Arts/Crafts	98	19.5	24	4.8
Music/Dance	86	17.1	61	12.2
Sports-Individual	109	21.7	108	21.5
Sports - Team	154	30.7	105	20.9
Publications	24	4.8	14	2.8
Games	38	7.6	22	4.4

Table A.16
Parents' Report of *Other* School and Community Sponsored Activities in Which Student is Involved: Alberta, 1990

Scouting	7
Computer clubs	6
Sunday school	5
Church Activities	4
Music	4
Volunteer work	4
Drama/speech/arts	3
Martial arts	3
Riding	2
Swimming	2
Fitness	1
Hi-Q	1
Modeling	1
Skiing	1
Student council	1

Table A.17

Number of Deaf and Hard of Hearing Students In Schools: Alberta School Administrators, 1989.

Number of Students with Impaired Hearing	Number of Schools with Hearing Impaired Students	Total Number of Hearing Impaired Students
	593	1,413
1	343	343
2	127	254
3	51	153
4	26	104
5	11	55
6	7	42
7	5	35
8	6	48
9	2	18
10	6	60
11	1	11
14	1	14
16	1	16
22	1	22
34	1	34
35	2	70
45	1	45
92	1	92

Table A.18
Specialized Training and Support to Staff Serving Hearing Impaired Students

Training and Support Available to Staff	All		Integrated	Self-Contained
	Number	Percent	Number	Number
All Reporting	593	100.0	576	17
Consulting Teacher				
Yes	189	31.9	176	13
No	58	9.8	55	3
No Response	346	58.3	345	1
In-school Workshops				
Yes	131	22.1	116	15
No	90	15.2	89	1
No Response	372	62.7	371	1
Regional Workshops				
Yes	155	26.1	142	13
No	59	9.9	59	0
No Response	379	63.9	375	4
Professional Courses				
Yes	127	21.4	114	13
No	68	11.5	66	2
No Response	398	67.1	396	2

Table A.19
Audiological Services Available to Alberta Teachers, 1990

	Audiologist Available	Degree of Satisfaction
All Responses	100.0	
Yes	48.1	100.0
Satisfactory		38.8
Not Satisfactory		6.1
No Response		55.0
No	11.1	
Don't Know	12.1	
No Response	28.7	

TableA.20
Hearing Aid Monitoring Available to Alberta Teachers, 1990

	Hearing Aid Monitoring available	Degree of Satisfaction
All responses	100.0	
Yes	42.0	100.0
Satisfactory		32.5
Not Satisfactory		7.1
No Response		60.4
No	12.9	
Don't Know	15.0	
No Response	30.1	

Table A.21
Services of Speech Therapist Available to Alberta Teachers, 1990

	Speech Therapist Available	Degree of Satisfaction
All Responses	100.0	
Yes	61.4	100.0
Satisfactory		38.0
Not Satisfactory		15.8
No Response		46.1
No	8.5	
Don't Know	5.1	
No Response	25.0	

Table A.22
Visual Language Interpreters Available to Alberta Teachers, 1990

	Interpreters Available	Degree of Satisfaction
All Responses	100.0	
Yes	18.6	100.0
Satisfactory		19.0
Not Satisfactory		5.9
No Response		75.0
No	29.1	
Don't Know	18.8	
No Response	33.5	

Table A.23
Occupational / Physical Therapy Available to Alberta Teachers, 1990

	Occupational / Physical Therapist Available	Degree of Satisfaction
All Responses	100.0	
Yes	30.1	100.0
Satisfactory		23.6
Not Satisfactory		6.9
No Response		69.3
No	21.8	
Don't Know	15.2	
No Response	32.9	

The low availability and high 'don't know' level for Occupational/Physical Therapy might indicate lack of experience with this service or that it is not needed by students.

Table A.24
Psychologist / Guidance Counselor Available to Alberta Teachers, 1990

	Psychologist or Guidance Counselor Available	Degree of Satisfaction
All Responses	100.0	
Yes	53.5	100.0
Satisfactory		36.0
Not Satisfactory		8.5
No Response		55.4
No	13.9	
Don't Know	4.8	
No Response	27.9	

Table A.25
Social Work Services Available to Alberta Teachers, 1990

	Social Worker Available	Degree of Satisfaction
All Responses	100.0	
Yes	39.4	100.0
Satisfactory		26.3
Not Satisfactory		6.3
No Response		67.3
No	16.8	
Don't Know	10.3	
No Response	33.5	

Table A.26
Reading, Special Education, Hearing Impairment Consultants Available to Alberta Teachers, 1990

	Consultant Available	Degree of Satisfaction
All Responses	100.0	
Yes	51.9	
Satisfactory		100.0
Not Satisfactory		34.3
No Response		6.7
		59.0
No	11.9	
Don't Know	6..1	
No Response	30.1	

About half of the teachers, 51.9 percent reported having consultant services available. Of that number, 34.3 percent were satisfied with the amount of consulting received.

Table A.27
Itinerant Teacher Services Available to Alberta Teachers, 1990

	Itinerant Teacher Available	Degree of Satisfaction
All Responses	100.0	
Yes	21.8	
Satisfactory		100.0
Not Satisfactory		20.6
No Response		4.2
		75.2
No	30.1	
Don't Know	12.3	
No Response	35.8	

Table A.28
Classroom Aide/Tutoring Services Available to Alberta Teachers, 1990

	Classroom Aide/Tutoring Available	Degree of Satisfaction
All Responses	100.0	
Yes	43.8	
Satisfactory		100.0
Not Satisfactory		34.5
No Response		7.3
		58.2
No	21.8	
Don't Know	5.7	
No Response	28.7	

Table A.29
Notetakers Available to Alberta Teachers, 1990

	Notetaker Available	Degree of Satisfaction
All Responses	100.0	
Yes	4.2	
Satisfactory		100.0
Not Satisfactory		12.5
No Response		4.2
		83.4
No	45.0	
Don't Know	12.7	
No Response	38.2	

Of all services listed Notetakers had the lowest availability level, 4.1 percent. There was a 12.5 percent degree of satisfaction, but also the highest No Response level. Since the total enrollment includes students in ECS and grade schools, where notetaking is not usually appropriate, the modest proportion of students who enjoy notetaking support is probably adequate to their needs.

Table A.30
Deaf Adult Available to Alberta Teachers, 1990

	Deaf Adult Available	Degree of Satisfaction
All Responses	100.0	
Yes	6.7	100.0
Satisfactory		13.5
Not Satisfactory		6.1
No Response		80.4
No	44.4	
Don't Know	13.1	
No Response	35.8	

Teachers are aware of the value of role models for students at all stages of development. That a majority of teachers feel they do not have deaf role models available either as adults (Table A.30) or peers (Table A.31) should attract some attention of curriculum planners and administrators. Most communities have deaf people or suitable ages and levels of achievement to provide this instructional aid, if desired.

Table A.31
Deaf Peers Available

Deaf Peers Available to Hearing Impaired Students	Deaf Peers Available	Degree of Satisfaction
All Responses	100.0	
Yes	14.7	100.0
Satisfactory		16.2
Not Satisfactory		6.5
No Response		77.2
No	39.8	
Don't Know	11.3	
No Response	34.3	

Table A.32
Specialized Medical Services Available to Alberta Teachers, 1990

	Specialized Medical Services Available	Degree of Satisfaction
All Responses	100.0	
Yes	10.9	100.0
Satisfactory		13.7
Not Satisfactory		2.8
No Response		83.6
No	23.8	
Don't Know	16.2	
No Response	49.1	

The reader is referred to the number of students with impaired hearing who have additional physical disabilities. On that account alone, it would seem important to obtain specialized medical support. Another compelling reason is that many students with impaired hearing have communication difficulties in the doctor-patient relationship. It takes some patience on the part of busy physicians—a commodity often in very short supply—to assure that an accurate case history is taken and a full understanding of the students' problems conveyed. Experience has shown too often that deaf patients, in particular, and physicians fail to communicate (Schein, 1989). For the schools, this shortcoming might be an important area in which to develop professional relationships that will benefit the students while in school and into adult life.

Table A.33
FM Systems Available to Teachers

FM Systems	Available	Used	Needed
All Responses	100.0	100.0	100.0
YES	40.0		
Used		29.1	
Not Used		16.6	
No Response		54.5	
NO	22.4		
Yes			17.8
No			21.6
No Response			60.6
No Response	37.6		

The lack of assistive listening device systems in the schools (Table A.33) suggests that insufficient attention is being given to hard of hearing students. These students profit greatly from such devices. With the electronic support given by an FM system, for instance, many students can function nearly normally. Others who have great difficulty using their hearing aids in the classroom usually find that their ability to hear vastly improves when assistive listening devices are made available to them.

Table A.34
Television Caption Decoder Available to Teachers

Television Caption Decoder	Available	Used	Needed
All Responses	100.0	100.0	100.0
YES	10.7		
Used		7.3	
Not Used		20.2	
No Response		72.5	
NO	44.4		
Yes			9.1
No			28.7
No Response			62.2
No Response	45.0		

Table A.35
Computer Available to Teachers

Computer	Available	Used	Needed
All Responses	100.0	100.0	100.0
YES	45.0		
Used		31.5	
Not Used		13.9	
No Response		54.7	
NO	17.6		
Yes			16.4
No			17.0
No Response			66.5
No Response	37.4		

Table A.36
Telephone Device for the Deaf (TDD) Available to Teacher

Telephone Device for the Deaf	Available	Used	Needed
All Responses	100.0	100.0	100.0
YES	10.3		
Used		7.9	
Not Used		20.6	
No Response		71.5	
NO	46.5		
Yes			7.3
No			30.5
No Response			62.2
No Response	43.2		

Table A.37
Flashing Fire Alarm Available to Teacher

Flashing Fire Alarms	Available	Used	Needed
All Responses	100.0	100.0	100.0
YES	8.7		
Used		7.1	
Not Used		19.2	
No Response		73.7	
NO	48.5		
Yes			10.9
No			27.9
No Response			61.2
No Response	42.8		

Table A.38
Other Amplification / Technical Devices Teachers Would Like in Classroom

Improved FM-Telex system (lighter, maintenance free)	7
More computers (especially in class)	6
Caption videos of literature being taught/documentaries	3
Developmental teaching tools	2
Equipment and curriculum for lower functioning students	2
Improved hearing aids	2
Large print computer programs	2
Overhead projector	2
Videotape machine (VCR)	2
Big screen with captions	1
Captionmaker	1
Consultative time with student/family regarding use of hearing aid	1
Decoder	1
Direction microphone	1
Flashing lights responsive to sound levels of screams or cries	1
Good acoustics	1
"INT" box to connect FM system to microphone	1
Language activities for deaf students in variety of academic areas	1
Language master	1
Lecture room with pitched seating	1
Materials lending library	1
Movie projector	1
Slide projector	1
Specialized tape recording system	1
Speech viewer (IBM)	1
Video camera	1
Videodisc player	1
Videodisk dictionary	1
Videotapes to teach signing	1

Table A.39
Total Years as School Administrator

Years as School Administrator	Number	Percent
All reporting	593	100.0
1 to 2	27	4.6
3 to 5	43	7.3
6 to 9	61	10.3
10 to 20	98	16.5
More than 20	38	6.4
No Response	326	55.0

Table A.40
School Administrator's Total Years in the Field of Education

Administrator's Years in Education	Administrators Number	Percent
All reporting	593	100.0
1 to 2	8	.3
3 to 5	8	1.3
6 to 9	22	3.7
10 to 20	80	13.5
More than 20	154	26.0
No Response	326	55.0

Table A.41
Total Years As Administrator of Present School

Years as Administrator In Current School	Number	Percent
All reporting	593	100.0
1 to 2	103	17.4
3 to 5	86	14.5
6 to 9	42	7.1
10 to 20	30	5.1
More than 20	6	1.0
No Response	326	55.0

Table A.42
Frequency of Administrator Attendance at Training Programs Related to Deaf and Hard of Hearing Students: Alberta, 1990.

Training Programs Administrators Have Attended	Frequency of Attendance
All Reporting	593
One or More Workshops	79
Courses in Teacher Training Program	19
Contact With Special Consultant	133
Degree in Deaf Education	0

Table A.43
Additional Comments by 82 Administrators

Only had one or two students usually described as mildly handicapped and doing well without significant intervention except for hearing aids or access to an FM unit.	48
Difficulty with forms because students were mildly handicapped and integration was not difficult	12
First experience with a deaf or hard or hearing student.	8
Lack of speech pathologists in their school	6
Recruiting individuals trained to work in hearing impairment	4
Finding personnel to teach sign language as option for students	4
Coping with the emotional problems of their HI students	3
Hearing impaired students needing different placement	2
Helping the mainstreamed student took additional time and work from staff that they could not afford. 1 set of parents were not supportive of their children or what the school was trying to accomplish. .	2
Getting and helping "untrained" teachers to accept and work appropriately with hearing impaired students	2
Delivery and maintenance of equipment. Student's appropriate use of equipment	2
Program Unit Grants. grants restored for special needs/resources or that grants needed to be allocated more justly.	2
Notetaker for the students	2
Lack of trained counsellors with signing ability	1
Personal lack of preparation prior to assignment	1
Difficulty with integrating hearing impaired students	1
Funds to train classroom aides to help students with integration	1

Table A.44
Other Services Listed as Needed by Alberta Teachers, 1990

Counselling on site (guidance, psychiatric)	6
Manual communication/sign language specialist	4
Psychologist who is proficient in sign language	4
One-to-one assistance in integrated programs	4
Volunteers that sign	3
Contact with variety of older deaf/hearing impaired students and adults / access to deaf community for deaf role models	3
Non-school social/recreational program	3
FM system that works consistently	2
Parent support and understanding	2
Reading specialists	2
Small groups for math instruction/math consultants	2
Tutors	2
Constant adult supervision - indoors and out	2
ASL and Deaf Culture programs	1
Behavioral specialist	1
Full time nurse	1
Government financed support for employers	1
Government provided appropriate reading materials	1
Homebased education when there are health problems	1
Inservice for classmates on problems the hearing impaired encounter	1
Itinerant teacher to preteach concepts	1
One-to-one talking partners to practice conversation	1
Physiotherapy for Cystic Fibrosis	1
Trained teachers, including signing ability	1
Transportation	1
Visual impairment consultant	1
Writing specialist	1

Table A.45

Familiarity and Usefulness of Alberta Education Materials As Reported by Alberta Teachers of Deaf and Hard of Hearing, 1990.

N = 505

DOCUMENT	FAMILIAR			USEFUL				
	Yes	No	No Response	Very Useful	Some what Useful	Not Useful	Not Applic	No Response
Alberta Provincial Curriculum/Curriculum Guides	344	32	129	133	112	25	24	211
Alberta Hearing Impaired Curriculum Guide	125	236	144	21	72	21	36	355
The Hearing Impaired Child In the Regular Classroom	156	205	144	46	70	13	35	341
Language Arts - Programming Suggestions for HI Students in Elementary Schools	111	242	152	24	60	21	40	362
The Use of Interpreters in an Educational Setting	81	274	152	22	29	9	59	386
Counselling for the Hearing Impaired	57	295	153	15	22	10	42	416
Career Development for the Hearing Impaired	44	305	156	9	19	9	51	417

Table A.46
Teachers' Report of Membership in Organizations Related to Hearing Impairment[a]

ACEHI - Association of Canadian Educators of the Hearing Impaired	29
CEC - Council for Exceptional Children	15
SHAA (Speech and Hearing Association of Alberta)	5
CALSPA (ACOA)(Canadian Assn. of Language & Sp. Pathologists)	5
TASH - The Association for the Severely Handicapped	3
Alberta Teachers Association	317

Other (N = 47)	
ECEC (Early Childhood Education Council)	13
IRA (International Reading Association)	6
ACLD (Association for Children with Learning Disabilities)	4
Christian Schools International	4
Special Education Council (ATA)	4
ACRID (Alberta Chapter of Registry of Interpreters for the Deaf)	3
AAYC (Alberta Association for Young Children)	2
AG Bell Association for the Deaf)	2
CCSD (Canadian Cultural Society of the Deaf)	2
Learning Disability Council	2
AAD (Alberta Association of the Deaf)	1
ACGUAA	1
ACSD (Alberta Cultural Society of the Deaf)	1
AHH (Association for the Hearing Handicapped)	1
ASHA (American Speech Language Hearing Association)	1
ATIP (Auditory Training Instruction Program)	1
AVLIC (Association of Visual Language Interpreters	1
CDSA(Canadian Deaf Sports Association)	1
CHIHA	1
Counseling Council	1
CUPE (Canadian Union of Provincial Employees)	1
EAD (Edmonton Association of the Deaf)	1
ELAC	1
LDAA (Learning Disabilities Association of Alberta)	1
Phi Delta Kappa	1

Note that of the 505 teachers reporting, not all reported membership in organizations while others reported 2 or more organizations. Thus, numbers are not additive.

Table A.47
Journals Read Frequently by Teachers of Deaf and Hard of Hearing Students:

American Annals of the Deaf	36
Volta Review	31
Canadian Journal of the Deaf	22
Alberta Signal	21
Deaf American	13
Silent News	12
Sign Language Studies	11
Vibrations	10
The journals above were listed for the teachers to check off. The others were filled in as appropriate.	
ACEHI(Canadian Educators of the Hearing Impaired)	5
Perspectives for Teachers of the Hearing Impaired	4
JSHD-Journal of Speech and Hearing Disorders	3
TLD-Topics in Language Disorders	3
Calgary Cord	2
Canadian Cultural Society of the Deaf Newsletter	2
Language Speech and Hearing Services in Schools	2
Broadcaster-National Association of the Deaf	2
ACRID-ALberta Chapter Registry Interpreters f/t Deaf	1
ASHA-American Speech Hearing Association	1
AVLIC- Association Visual Language Interpreters)	1
BJDC	1
Canadian Deaf Sports Association	1
CIRA Bulletin	1
Childen's Language Teaching and Therapy	1
Dr. Foth	1
Exceptional Children	1
FCC	1
HPEC "Runner"	1
Journal of Communication Disorders	1
Journal of Speech and Hearing Research (JSHR)	1
Psychology Today	1
Speech and Language Journal	1
Teaching English to Deaf & Second Lang. Students	1
Various deaf organization newsletters /publications	2
"We didn't realize these were available."	1

Table A.48
Administrator's Knowledge of Special Organization for Parents of Hearing Impaired Students

Administrator Responses	Number
All Responses	593
Yes	28
No	168
Don't Know	68
No Response	329

Table A.49
Administrators Awareness of Deaf Community Services and Activities: Alberta, 1990

Administrators Level of Awareness	All Programs		Self-Contained Programs	
	Number	Percent	Number	Percent
All Reporting	593	100.0	17	100.0
Very Aware	56	9.4	5	29.4
Partially Aware	191	32.2	10	58.7
Not Aware	29	4.9	0	0
No Response	317	53.5	2	11.6

Table A.50
Involvement of Deaf Adults in Programs for Hearing Impaired Students:

Involvement of Deaf Adults	All	Integrated	Self-Contained
All Reporting	593	576	17
Yes	13	7	6
No	248	238	10
No Response	332	331	1

Table A.51
Parents of Hearing Impaired Students Involvment in General Parent Organizations

Parent Responses	Number
All Responses	593
Yes	130
No	128
No Response	335

Table A.52
Availability of Technical Institute Programs For Hearing Impaired Students

Availability of Technical Institute Programs	Program Available		Special Support Services Available	
All Responses	593	100.0		
Yes	71	12.0		
Support Available			31	5.2
Support not Available			8	1.3
Don't Know			98	16.5
No Response			456	76.9
No	47	7.9		
Don't Know	94	15.9		
No Response	381	64.2		

Table A.53
Administrators' Awareness of
Availability of University Programs For Hearing Impaired Students

Availability of University Programs	Program Available		Special Support Services Available	
All Responses	593	100.0		
Yes	82	13.8		
Support Available			34	5.7
Support not Available			14	2.4
Don't Know			97	16.4
No Response			448	75.5
No	45	4.4		
Don't Know	84	16.9		
No Response	382	61.7		

TABLE A.54
Administrators' Awareness of Work Experience Programs For Hearing Impaired Students

Availability of Work Experience Programs	Program Available		Special Support Services Available	
All Responses	593	100.0		
Yes	101	17.0		
Support Available			45	7.6
Support not Available			17	2.9
Don't Know			94	15.9
No Response			437	73.7
No	26	4.4		
Don't Know	100	16.9		
No Response	366	61.7		

Table A.55
Administrators' Awareness of Academic Upgrading Programs for Hearing Impaired Students

Availability of Academic Upgrading Programs	Program Available		Special Support Services Available	
All Responses	593	100.0		
Yes	96	16.2		
Support Available			41	6.9
Support not Available			7	1.2
Don't Know			103	17.4
No Response			442	74.5
No	22	3.7		
Don't Know	103	17.4		
No Response	372	62.7		

Table A.56
Administrators' Awareness of Community College Programs For Hearing Impaired Students

Availability of Community College Programs	Program Available		Special Support Services Available	
All Responses	593	100.0		
Yes	100	16.9		
Support Available			39	6.6
Support not Available			7	1.2
Don't Know			104	17.5
No Response			443	74.7
No	31	5.2		
Don't Know	86	14.5		
No Response	376	63.4		

Table A.57
Special Support in Alberta Vocational Centers For Hearing Impaired Students

Availability of Alberta Vocational Education Centers	Program Available		Special Support Services Available	
All Responses	593	100.0		
Yes	71	12.0		
Support Available			31	5.2
Support not Available			8	1.3
Don't Know			98	16.5
No Response			456	76.9
No	47	7.9		
Don't Know	94	15.9		
No Response	381	64.2		

Table A.59
Teachers' Years Teaching in Current School

Years Teaching in Current School	Number of Teachers
All reporting	505
1 to 2	128
3 to 5	85
6 to 9	77
10 to 20	69
More than 20	19
No Response	127

Table A.60
Teachers' Specific Training in Area of Hearing Impairment

Special Training to Teach Deaf and Hard of Hearing Students	Number of Teachers	Number of Teachers in Self Contained Programs
All Reporting	505	61
Yes	125	46
No	256	10
No Response	124	5

Table A.61
Types of Training Received by Teachers of Hearing Impaired Students

Types of Training	Number of Teachers
All Reporting	125
One or More Workshops	110
Courses in Teacher Training Program	65
Degree in Deaf Education	39*
Contact With Special Consultant	115

* 31 teachers with a degree in deaf education were in self contained programs.

Table A.62
Other Training Teachers Have Received

Types of Training	Number of Teachers Involved
Sign language courses	8
Diploma in deaf education	5
Speech pathology training	4
Special education specialization	3
ACEHI certificate	2
Deaf family member	2
Reading literature	2
Graduate courses/deaf education	1
Experience as instructor with HI adult and interpreter	1
Research on deaf education in class	1
Attendance at ACEHI/CAID conference	1
MRC level 3	1

Table A.63
Teachers' Estimates of Own Hearing

Presence of Hearing Loss	Number	Percent	Number	Percent
All Teachers	505	100.0		
Yes	29	5.7		
Some Trouble			15	3.0
Much Trouble			1	.2
I am deaf			12	2.4
No Response			1	.2
No	357	70.1		
No Response	119	23.6		

Table A.64
Teachers' Knowledge of Deaf Organizations in Their Region

Knowledge of Deaf Organizations	Number
All Responses	505
Yes	95
No	56
Don't Know	232
No Response	123

Table A.65
Frequency of Teachers' Attendance at Deaf Organizations in Their Area

Frequency of Attendance at Meetings of Deaf Organizations	
Frequently	8
Occasionally	9
Rarely	13
Never	161
No Response	314

Table A.66
Teachers' Report of Number of Times a Week Student has Various Types of Speech Therapy

Frequency of Speech Therapy Services	Consultation	Individual Therapy	Small Group Therapy
	Percent	Percent	Percent
All Reported (N = 878)	100.0	100.0	100.0
Never	2.5	3.6	3.1
1 time weekly	7.6	14.4	6.9
2 times weekly	2.2	6.9	2.2
3 times weekly	.9	3.9	1.1
4 times weekly	.6	2.7	3.2
5 times weekly	.2	1.4	1.8
6 to 8 times weekly	0.0	.2	0.0
No Response	86.0	66.9	81.7

Table A.67
Teachers' Report on Type and Frequency of Communication Used by Student in the Classroom
N = 878

Frequency/ Type of Communication	Speech	Writing	Finger Spelling	Sign Language	Simultaneous Speech & Sign	Other
	Percent	Percent	Percent	Percent	Percent	Percent
Frequently	46.0	31.4	12.3	23.5	14.0	3.0
Sometimes	14.6	15.5	7.9	7.6	10.0	3.2
Rarely/Never	12.1	14.6	12.6	9.0	13.0	3.6
No Response	27.3	39.5	67.3	59.9	63.0	90.2

Table A.68
Teacher Comments

Mild handicap with successful integration with some adjustments	18
Mild to moderate handicap - need for additional help/having difficulty	12
Need for speech therapy	6
Need for availability of special training including while at university	6
Help in selecting and obtaining materials and publications	5
Need to address specific problems of dependent/multiply handicapped	6
Need for more specialized materials (i.e. on sign language)	5
More support (aides, smaller classes)	3
Recognition of lack of skill in communicating with students	2
Need for itinerant consultants and specialists	2
Problems with students not using / abusing hearing aids	2
Need for education regular students about needs of deaf and hard of hearing	1
Notetakers at secondary and postsecondary level	1
Need for counseling skills	1
Parent involvement/parent support groups	1

Table A. 69
Organizations to which Parents of Students with Impaired Hearing Belong: Alberta, 1990

Glenrose Rehabilitation School Hospital (Inc. Audiology -compensation strategies)	19
Alberta Aids to Daily Living	13
Alberta Deaf Sport Association	3
Calgary Association of the Deaf	3
Canadian Hearing Society	2
Cultural Society of the Deaf	2
Canadian National Institute for the Blind	1
Grand Prairie Association of the Deaf	1
Londonberry Child Development Center	1
Medicine Hat - Parents of the Hearing Impaired	1
Medicine Hat Hearing Impaired Program	1
Parent Support Group for Hearing Impaired Children	1
Rundall Park Preschool - Early Childhood Intervention	1
Ski School for the Disabled	1

Table A.70
AdditionalAssistive Devices in Hearing Impaired Students' Homes

Alarm clock - flashing light	7
Amplifier for television set	2
Alarm clock - vibrating	2
Personal TACTAID	2
Vibrating bed alarm	1
Wake-up vibrating unit	1
Sign language story videotapes	1
Computer	1
Call light system	1
Infra-red earphone system	1
Telephone amplifier	1
Hearing dog	1
Vibrator smoke detector	1
Flashing alarm	1

Table A. 71
Concerns Expressed by Parents of Students with Impaired Hearing

Lack of speech therapy services	17
Obtaining, fitting, cost, replacement of hearing aids and FM systems	16
Finding appropriate educational placement and support services (including coordination)	10
Social needs - finding friends, having social activities	8
Behavior problems	4
Assessments (adequacy, regularity)	3
Obtaining respect from professionals(medical, educational)	2
Understanding of government officials about needs of population	1
Lack of emphasis on reading and writing skills	1
Refusal to wear glasses	1
Refusal to wear hearing aids	1
Lack of individuals who sign in program	1
Vertigo (more information, effect on hearing)	1
Bilingual family	1
Educational/vocational programs for multiply handicapped young adults	1
Monaural hearing - lack of understanding	1
Support groups for hearing parents of deaf children	1
Etiological diagnosis	1
Special needs of hearing impaired (fatigue, self confidence)	1
Communicating with child	1
Diagnosis and treatment of vision problems	1
Purchasing glasses	1
Diagnosis and treatment of hearing problem	1

PARENTS' ADDITIONAL COMMENTS ON THEIR CHILDRENS' EDUCATION:

A number of parents were willing to share their experiences and concerns. These covered a wide variety of areas and some parents listed several so that the numbers do not correspond with the total number of comments

Figure A.72
Parents' Comments About the Education of Their Hearing Impaired Children

Satisfied with current situation (aide, speech therapy, amplification staff/several noted student's hearing was good))	54
Speech therapy lacking	45
Problem with placement/children not learning/services not available, possibility of need to relocate to find appropriate class	24
Need for more effective and efficient hearing aids and FM systems Problem with repairs/correct usage	16
Training for teachers in integrated setting(understanding and programming)	15
Need for individual classroom aides, other extra help, other resources	13
More individualization (especially in integrated settings a setting where self-contained deaf students with range of ability)	12
More emphasis on teaching language (English, reading, writing)	12
Problems keeping up in integrated settings (particularly in classes with many students. Better use of integration	11
Need for school personnel to have higher expectations	10
Forms not relevant. Students have mild loss and are doing well with minor adjustments	9
Need for telephone devices, other equipment	9
Improve attitudes and understanding of school personnel with all degrees of HI	7
Additional recreational/social sports activities including socializing with other HI students	7
Training and attitudes of administrators and school boards	7
Services vary too much according to location (problems in rural areas)	6
Parents have taken responsibility	6
Availability of information(about to access resources, fight for your child)	5
Battle on yearly basis getting services/trained, experienced teachers	5
Concern for when students get older	5
Need for assessment	4
Need signing teachers for deaf children	4
Student denial/refusal to wear hearing aid	4
Better qualified staff/specialized training for teachers	4
ASL should be used to teach in the classroom	4
Standardized sign language	4
Problems with transportation	4
Earlier mainstreaming	3
Need for work experience/vocational training	3
Difficulty getting a diagnosis	3
Need for interpreters	2
Need for driver education	2
Better analysis of learning difficulties	2
Services not available in close proximity	2
Lack of interdisciplinary conferences and meetings	2
Better communication and sharing between schools serving the hearing impaired	1
Need for bilingual/ signed English and ASL	1
Physical therapy	1
Need for deaf teachers	1
Getting assistance from social service agencies	1
Choice in placement	1
Too many assessments - wasting time and causing stress	1
Want primarily oral program	1
Want child taught with auditory-verbal method	1

Note: Some parents made comments counted in several categories